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ABSTRACT

The report of the Regional Institute of Higher Education and Development Workshop held in Vientiane, Laos, December 1974 is presented. The workshop focused on three main issues: national development strategies and high-level manpower needs; the responses of universities of high-level manpower requirements; and the employment of university graduates in Southeast Asia. (Author/LBH)

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DEVELOPMENT STRATEGIES AND MANPOWER NEEDS: THE RESPONSE OF SOUTHEAST ASIAN UNIVERSITIES

Proceedings of the Workshop
Held in Vientiane, Laos
15 to 17 December 1974

Edited by

Muhammadi

Regional Institute of Higher Education and Development
Singapore
1976

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PREFACE

The university is considered the breeding ground for future leaders and high-level manpower personnel for the various sectors of national development. However, it is not certain whether a proper mechanism has hitherto existed which effectively coordinates the supply and demand for the various categories of university graduates with the various sectors of national development. It is also not certain whether the university system has been responsive to the manpower requirements projected by manpower planning agencies. In the Southeast Asian countries what usually happens is that the university and the development agencies oftentimes work independently of each other. To utilize resources more effectively for national development, the university and the development agencies must work closely together with coordinated efforts and the university must be brought into the national development efforts.

As national development progresses, the need for such a cooperation is even more urgent, since the demand for high-level manpower intensifies. The universities should be in the position to know the various branches of the sciences, the professions and other disciplines in which personnel are in demand, and therefore plan the size, the enrolment of each discipline, and the curriculum development according to the needs of the changing society. The economies of most Southeast Asian countries are, however, still at an early stage of development and the demand for university graduates is increasing. Thus, whilst most of the university graduates are being absorbed by government agencies, including public corporations and oftentimes without due regard to their academic background, there remains a large residue of university graduates who form the unemployed and underemployed. This problem will increase with time in the absence of a mechanism to correlate university enrolment with national development needs, especially as business and public organizations seek individuals with specific skills and training.

As all countries in Southeast Asia are committed to development, it is essential that a bridge — an institutionalized one if it is deemed necessary — between the university and the development agencies be created. In fact the university should be accepted as an integral part of development resources functioning as a breeding ground for much needed high-level manpower. Authorities and personnel on both sides of the bridge should therefore have a common platform and objective to work from, and they must be constantly in close contact and be fully aware of each other's needs.

In contemplating further this aspect of a closer and more effective cooperation between the university and national development agencies in Southeast Asian countries, particularly in connection with the role of the university as a breeding ground for high-level manpower needs for national development, the Regional Institute of Higher Education and Development had the privilege of being in a position to convene a workshop on 'Development Strategies and Manpower Needs: The Response of Southeast Asian Universities', whereby knowledgeable authorities representing the national development agencies, and scholars representing the university communities from RIHED member countries, as well as from other regional and international agencies, could bring their experience and insights into this problem.

The workshop was held in Vientiane, Laos from 15 to 17 December 1974. Thirty-nine participants from eight Southeast Asian countries, viz. Cambodia, Indonesia, Laos, Malaysia, Singapore, South Vietnam, Thailand, and the Philippines as well as representatives from Hong Kong, Asian Institute of Technology (AIT), International Council for Educational Development (ICED), Institute of International Education (IIE), International Development Research Centre (IDRC) were present in Vientiane, Laos for these deliberations.

This report of the proceedings of the workshop comprises papers written or presented in the workshop. The discussions in the sessions are summarized in Part IV. Due to lack of space, some of the papers presented in the workshop are not published in this report.

January 1976 Muhammadi

WELCOMING ADDRESS BY DR. AMNUAY TAPINGKAE
DIRECTOR, RIHED

On behalf of the Regional Institute of Higher Education and Development, may I extend my warmest welcome and appreciation to you for your presence at the opening ceremony of the Regional Workshop on 'Development Strategies and Manpower Needs: The Response of Southeast Asian Universities'. RIHED, which is an inter-governmental organization in the Southeast Asian region, was established to stimulate and facilitate cooperation among universities and governments of the countries of Southeast Asia, and to enhance the contributions of higher education to the social and economic development of the countries in the region and of the region as a whole. To achieve such objectives, RIHED, among many other activities and programmes, sponsors workshops and seminars, both on the national and regional levels. In bringing together scholars, administrators, and government officials in agencies responsible for decisions affecting higher education development, it is our hope that meaningful exchange of ideas on problems of development will take place. It is in the spirit of cooperation and promotion of better understanding that this workshop is organized.

In the past four years, RIHED has convened regional workshops in Singapore, Malaysia, and Thailand, and has sponsored national seminars in Cambodia, Thailand, Malaysia, Vietnam, Laos, and Indonesia. This workshop is the first regional gathering to be held in Laos.

The university has a primary mission of educating able students beyond the secondary level to become future leaders of the country as well as to become responsible and responsive citizens. The university teaches the arts and sciences to those who must prepare themselves for responsible positions. In addition to academic training, the university is also a centre for nurturing social and cultural growth. Apart from this primary mission, the university must meet new challenges of this day and age. One of the challenges is in terms of university responses to the development needs of the country. All the countries of Southeast Asia must utilize their limited resources for development. The university is one of the most important resources which can contribute to national development. One of these contributions is the manner in which the university understands high-level manpower requirements, and its response to these needs.

As all the countries in Southeast Asia are committed to development, it is essential that a bridge between the university and the development agencies be created. In fact the university should be accepted as an integral part of the development resources, functioning as a breeding ground for much needed high-level manpower. Decision-makers and personnel on both sides of the bridge should have common objectives to work for, and they must be in constant close contact with each other and be fully aware of each others needs. It is encouraging to learn that some RIHED member countries have already taken steps to establish such a vital link.

To promote a closer and more effective cooperation between the university and national development agencies in Southeast Asian countries, the Regional Institute of Higher Education and Development takes this opportunity to convene a Workshop on Development Strategies and Manpower Needs and the Responses of the University.

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The workshop, which will convene the first session this afternoon, will focus on three main issues, namely: development strategies and high-level manpower requirements in member countries, the responses of the Southeast Asian universities to these requirements, and the employment of university graduates. These three areas of concern will be dealt with in five discussion sessions. It is hoped that delegates from member countries and participants will learn of development strategies, especially in relation to high-level manpower requirements in member countries, discuss the actual and potential contributions of the university communities as delivery systems, and pay attention to the employment of university graduates. These deliberations will hopefully bring insights into these problems. The workshop will devote its final session to the preparation of recommendations which might influence policy decisions and implementations.

The Regional Institute of Higher Education and Development is grateful to the Ministry of Education, Fine Arts, Youth and Sports of Laos for hosting this regional workshop. RIHED has received much cooperation from the officials of the Ministry in the preparations for this workshop. I wish to thank the Ministry of Planning and Cooperation and the Institute of Law and Administration for making available physical facilities for this regional meeting.

On behalf of the Institute, I wish to take this opportunity to express my sincere gratitude and appreciation to Mr. Raja Roy Singh, Director of the UNESCO Regional Office for Education in Asia, for making available a partial support for this regional workshop. UNESCO was instrumental in the formulation of the philosophy which led to the establishment of the Regional Institute of Higher Education and Development, and has been one of the most active supporters of the Institute's programmes and activities. A partnership such as this enables RIHED to achieve global perspective which is vital to its existence and mission.

The Regional Institute of Higher Education and Development and all participants of this workshop are honoured by the presence of His Excellency Leuam Insisienmay, Deputy Prime Minister and Minister of Education, Fine Arts, Youth and Sports, at this official opening of the workshop today. I feel highly honoured to call upon His Excellency, the Deputy Prime Minister and Minister of Education, Fine Arts, Youth and Sports now to deliver his opening address for this regional meeting.

OPENING ADDRESS BY HIS EXCELLENCY LEUAM INSISIENMAY DEPUTY PRIME MINISTER AND MINISTER OF EDUCATION, FINE ARTS, YOUTH AND SPORTS OF LAOS

First of all, on behalf of the Provisional Coalition Government and on behalf of the Ministry of Education of Laos, let me say how honoured we are to have been given the opportunity to host the annual workshop convened by the Regional Institute of Higher Education and Development. On this occasion allow me to extend our warmest welcome to all participants.

This RIHED annual workshop will not only profit member countries, as it always does, but it also falls on a period of time when the Lao Ministry of Education is considering and planning the creation of more institutions of higher education to cope with the social and economic development of the country.

The Kingdom of Laos has just stepped out of a lengthy war. She entered into a new era the very day the Provisional Coalition Government was formed. The Lao people strongly believe that this new era will bring about peace and understanding among the people themselves. Being in charge of education, I want the newly created university to take part in the fulfilment of peace, independence, neutrality and democracy, and contribute to the well-being of the people.

I acknowledge with thanks the fact that RIHED had provided the Ministry of Education with funds to convene a national seminar during which our teachers had the opportunity to look into the resolutions adopted by RIHED, and to sort out those they felt they can either implement or adapt to their convenience. According to the report I have received, the seminar had been satisfying and successful. Besides this RIHED also gives assistance in matters of research grants and provides a clearing house system available to interested scholars. This facility is very useful, especially for a country like ours which is still very short of appropriate documentation centres at research level.

This being the first time that Laos has the privilege to host a RIHED regional workshop, I must apologize for any shortcomings that may have occurred in the preparation of the workshop as well as in taking care of the participants. The local organizing committee has tried its best to make you feel comfortable.

As you may know already, higher education is not only a necessary component to any system of education, but it is also one of the most important assets of our country. It is true that at the university level, education is mostly involved in research in different disciplines, programming, and training of high-level manpower. Higher education is the centre for the propagation of cultures, the centre of creativeness, the maker of outstanding nationals on whom depends the future of the nation in the fields of sciences, economics, and culture. Furthermore, it is through higher education that the results of research works are transmitted to primary and secondary education.

The few remarks I just made show the importance of higher education in the development of a country. Therefore, it is essential that higher education should embody the needs of the nation, keep up with progress while bearing in mind the exact situation so as to be rooted in it. This is why the main objective of higher education is not only to train high-level men and women, but also to instil into these men and women a sharp awareness of national problems, a love for their fellow-countrymen and their country, confidence in the country's future as well as the ability to make sacrifices in favour of common interest.

Based on these reasons and on the fact that sending students to be trained abroad is not only a very expensive process but that it does not always meet our needs, the Government of Laos has decided to set up a national university and is gradually cutting down the number of training scholarship abroad.

I find the topic of the workshop most suitable for the present situation of our country. This is another reason why I shall take great interest in your deliberations. I now have the privilege to declare open the RIHED workshop on 'Development Strategies and Manpower Needs: The Response of the Southeast Asian Universities'. I thank you.

PART I

DEVELOPMENT STRATEGIES AND HIGH-LEVEL MANPOWER NEEDS IN SOUTHEAST ASIA

DEVELOPMENT STRATEGY AND MANPOWER NEEDS IN SINGAPORE

Koh Watt Seng

BACKGROUND

Like many Asian countries, Singapore spent the post-war years of the 1950s in an effort to achieve self-government and free herself from colonialism.

The 1960s greeted Singapore with many problems. Politically she became part of Malaysia in 1963. This was not to last. On August 9, 1965, Singapore was separated from Malaysia and became an independent sovereign state. It was still suffering from Indonesian confrontation which the late President Soekarno initiated against the newly formed Malaysia. Communal riots had occurred in 1964, jeopardizing political and social stability. Even as the government grappled with these problems, talks of an impending British pull-out East of the Suez and from Singapore laid bare the possibility of a serious unemployment problem. Can a tiny island nation of 584.3 square kilometres (224 square miles) backed with over 2 million people, devoid of national resources survive in these hostile circumstances? The economic forecast in 1965 was indeed bleak.

Despite these problems, the late 1960s and early 1970s proved to be the 'Development Decade' for Singapore. The political climate stabilized. Bureaucracy was revamped. The backbone of the slum problem was snapped with a massive slum clearance and re-housing scheme. Schools were built and officially opened at an average rate of almost one per month to provide enough places for school-going children. A vigorous family planning campaign reduced the birth rate from an annual 3.5 per cent to less than 2 per cent. Singaporeans were constantly advised to live harmoniously together as a multi-racial and multi-lingual nation. They were called upon to tighten their belts and dedicate themselves to the task of nation building for national survival. The struggle was hard but it paid off.

As Singapore entered the 1970s, she was able to take the year 1971 in her stride. 1971 was to see the final phase in the rundown of British forces, so it was anticipated with no little trepidation. Today, industries are burgeoning in a near full-employment economy. Economic activity has been diversified. Instead of the heavy reliance on entrepot trading inherited from the colonial past, new directions are taken towards the strengthening of such sectors as manufacturing, tourism, shipbuilding and shiprepairing. Over the period 1959 to 1972, the Gross Domestic Product increased four times to S$7,322 million, the per capita income increased three times to S$3,410 value, added through manufacturing activities increased ten times to S$1,717 million and foreign trade doubled to S$15,680 million. Today Singapore is the third busiest port in the world and the third largest oil refining centre after Houston and Amsterdam.. This foregoing background is necessary to provide the backdrop against which Singapore's problems and development strategy can be discussed in the correct perspective in connection with its high-level manpower needs.

PRESENT PROBLEMS

Looking back on her achievements, Singapore can have cause to be proud of her achievements. Because of her limited land area, agro-based economic development is not possible except to the limited extent of marginally lessening dependence on imported food supplies. She has therefore launched an ambitious industrialization programme to broaden her economic base. Entrepot trade and commerce, on which the country's economy had traditionally depended for over 140 years, could no longer generate sufficient national income to support growing social requirements. In this industrialization process she has the disadvantage of not having natural resources of her own. She also does not have an adequate population base to provide the market for all her products. In embarking on manufacturing Singapore is aware of the vulnerability of double dependence on world markets for supply of raw materials as well as the market for her finished products. In a world which is rapidly becoming more and more interlinked through complex inter-dependence, Singapore, with her limited land and lack of natural resources finds herself less able than others to cushion her economy from the vagaries of regional and world economics and politics.

Two major considerations weigh heavily in economic planning, namely population growth and the state of the world economy.

The population problem, which is amongst the most crucial and urgent problems facing the world today, is also of major concern to Singapore. She is about the most densely populated country in the world with a population density of 3,726 persons per square kilometre, and the population continues to increase, this growth being a function of natural increase. In 1973, the crude birth rate was 22.1 live births per thousand population and the crude death rate was 5.5 deaths per thousand population, giving a rate of natural increase of 16.6 per thousand.

The government is fully aware of the fact that Singapore's further growth and development can be diminished or even negated by an ever increasing population. Unchecked population growth must mean massive demands for more schools, hospitals, social, recreational, and public health services. This will cause a heavy burden on the state and a dilution of standards. The quality of life will inevitably be adversely affected if there are too many people around resulting in overcrowding, noise, environmental pollution, and other forms of social pressure.

Currently Singapore is aiming at a net reproduction rate of 1.0 or an average of 2 children per family by 1980. This will mean an annual fertility decline of about 5 per cent from now onwards. This is going to be difficult since the fertility rate is already low. Even if this target is achieved, because over half of its population is below 21 years, Singapore can achieve zero population growth only in 50 or 60 years time. The ultimate population size then will be more than twice its present size.

The second major problem arises from Singapore's being at the mercy of world economic trends. The recent fuel crisis in particular has underlined the poet John Donne's words that no man is an island unto himself. Man belongs to man. No man lives to himself or dies to himself alone. It is the same with nations in this complex interdependent world where when one nation coughs and the others sneeze. The current shortage of raw materials may toll for all humanity including Singapore. This is especially the case with Singapore. In her open economy, inflation is imported through her imports of essential food and other materials. Recession in other parts of the world has resulted in a drop in demand for her manufactured goods. The electronics and textile sectors have already been affected; at the same time inflation and wage increases tend to price her products out of competition. Her economic growth rate forecast of 15 per cent for 1974 cannot now be achieved, the shortfall depending on how the developed countries in the West recover from their economic crises.

ECONOMIC DEVELOPMENT STRATEGY

The problems facing Singapore, magnified by the limited physical and natural resources of the island, call for a certain kind of planning little met elsewhere. The openness of her economy requires greater discretion, imagination, and foresight on the part of her planners who have to contend with more complex imponderables than their counterparts in other countries. Except for manpower and latent talent therein they have less available resources to marshall thereto. They have also to contend with the rising expectations of the populace whose desires and aspirations have been whetted by the success and affluence of the recent levels. The options open to Singapore are extremely limited.

Ironically, while Singapore is concerned about the problem of population growth and is adopting all means possible to slow down the rate of growth, she was, until recently, facing a labour shortage at all levels of economic production, from top level management down to unskilled labour. The recession in recent times has somewhat relieved the pressure on labour supply to a limited extent, subject to delays in relocation of surplus labour.

Economic development strategies have the following objectives:

1. Industrialization and diversification into manufacturing to broaden the economic base and to move away from traditional dependence on entrepot trade and commerce;

2. Development of the internal infrastructure, e.g. communications and transport facilities, public utilities, and industrial estates in support of industrialization;

3. Development of financial and technical services including industrial financing, technical consultation, and economic research services;

4. Expansion of the port facilities, development of tourism, and extension of financial and commercial facilities to enhance invisible export earnings;

5. Continuance of the growth of trade and commerce.

In the initial stages of development, industrialization had aimed to attract labour-intensive export-orientated industries which could absorb the large number of school-leavers entering the labour market each year. However, industrialization had accelerated at such a pace that the employment pattern has been reversed. Singapore is now facing a labour shortage, particularly of skilled workers and technicians.

In the context of this labour shortage and a near full employment situation, a new strategy in industrial development is being adopted. The emphasis is now on skill rather than labour content, with appropriate emphasis on the promotion of industries capable of stimulating technological growth and contributing to the development of modern skills at all levels. With its strategic geographical location, political and economic stability, efficient infrastructure, and low-cost yet highly productive and disciplined work force, Singapore sought to establish itself as the operational base for multi-national companies which cater to the global market. The government is actively promoting industries dealing in machine tools, industrial machinery, petrochemicals, sophisticated electronic systems, medical and scientific instruments, and modern supporting industries producing tools and dies, various types of precision castings, forgings and other parts and components, as well as encouraging existing industries to upgrade their technological content.

To speed up the modernization process the Government is adopting a number of new measures designed to promote the desired industries. First the Government will participate in up to 50 per cent of the equity of specialized supporting industries, those parent companies of which may not have enough capital to set up branches in Singapore. The companies may eventually buy back all or part of the Government's shares. The basis of granting tax incentives has also been revised — the main criteria are capital investment (including training cost) per worker, value added per worker and, more important, the ratio of technical personnel and skilled workers to the total work force. Other incentives include export financing in the form of an export credit scheme and possibly export insurance, and generous Government subsidies for training skilled workers.

MANPOWER DEVELOPMENT STRATEGIES

In an economic situation which is at dynamic equilibrium, manpower at all levels is needed in a replacement role — to replace those who are no longer productive through death, retirement, resignation, emigration, and other causes. In the Singapore context, planned manpower development takes on added significance. Firstly, economic development is based on economic services and value added in manufacturing. The sort of economic activities planned are, in most cases, relatively new to Singapore, especially in the areas of manufacturing and provision of sophisticated financial, commercial, and technical services. Skills have to be developed or where they had existed before, they have to be modernized or retrained for a more advanced role in a changed environment. Manpower development strategies being adopted are therefore necessarily encompassing all facets of society.

At the primary and secondary school levels, the education system has been restructured to ensure that education not only serves its traditional purposes of catering to the development of the mental, physical, social, and spiritual aspects of the individual, but also provides opportunities for students to be prepared for careers later in life. Whereas previously students are given a six-year course in primary education at the end of which only those successful in the Primary School Leaving Examination proceed for further education at secondary level, while the unsuccessful ones drop out of the school system, the course has now been restructured to enable the slow learners to take it over a seven-year period (the able ones can still complete their primary education in six years). Those who prove their ability for further education will proceed to secondary education, while those who have no aptitude for further academic training will be channelled into vocational preparatory classes or into apprenticeship programmes.

Even at the secondary school level, where they follow a common initial two-year lower secondary education curriculum, all boys and approximately 50 per cent of the girls attend technical education programmes offered through centralized workshops. At the end of the two years students may proceed to upper secondary education in liberal arts, science, technical, or commercial streams or they may branch off into vocational training to learn a skilled trade.

At the vocational training institutes, provision is made for intakes of different levels of school leavers. Courses are offered to those who have completed primary, lower secondary, or upper secondary education. These courses cover a variety of skill trades including metal machining, metal fabrication, motor vehicle mechanics, electrical and electronics, construction trades, manual and applied arts, including printing, and hotel catering trades. Courses leading to basic trade certificates are conducted over one, two, or three years according to the age and prior academic training of the students. Provisions also exist for workers to advance to higher levels of skill via in-service and part-time courses.

At the tertiary level, technical training is provided in the three technical institutes. Management and supervisory courses are offered through the National Productivity Board, the Supervisory and Management Training Association of Singapore, the University of Singapore Extra-Mural Studies Department, and Training-Within-Industry programmes. In addition a number of other private commercial organizations also offer training in office skills, secretarial, and lower management functions. The universities are involved in the training of technologists, scientists and potential managers.

In the Singapore context it is not sufficient just to maintain the situation through training for replacement. Singapore's economy, as already noted, is very sensitive to global economic fluctuations. Singapore must develop the skills of its people to the extent that they will be able to contribute effectively at all times, and at the same time preserve some viability which can be called forth in times of adversity.

In her pursuit to become a nation of skilled workers, Singapore has not neglected the women, who form 50 per cent of the population. There is equality of access, opportunity, and wages for women in all skill areas though traditional prejudice may still result in female predominance in some trades, e.g. clerical and secretarial staff, while there is male predominance in others, like hard engineering trades. Nonetheless, we are already beginning to produce female machinists, welders, engineers, etc.

THE ROLE OF INSTITUTIONS OF HIGHER EDUCATION

Traditionally, institutions of higher education, particularly universities, have acquired the image of ivory towers holding themselves aloof from their mundane environments. The stereotype of the university professor is still very much that of an absent-minded person ensconced behind his tomes and journals, amid a bewildering array of paraphernalia, completely absorbed in his pursuit of the elusive enigma. This isolation from reality in dedication to advancement of the frontiers of knowledge may have been relevant in the last century. It may still be relevant in countries which have the resources for such activities. But in the Singapore context it has been realized that institutions of higher learning have an important role to play in the training of manpower for national development. Universities and colleges, financed out of public funds, have a responsibility to the nation.

Appendix 1 lists out faculties, departments, and divisions in the five institutions of higher learning in Singapore. It can be seen that there is a strong emphasis on science and technology. Teaching is becoming more and more related to the environment instead of being hooked on to abstract theory. Besides teaching, university and college staff also undertake research and consultancy services. They accumulate, preserve, and disseminate knowledge, catering to the needs of society as they turn out graduates year after year.

The emphasis on science and technology is not to imply that Singapore does not provide her students with opportunities to enjoy the finer things in life. It is realized that no society can run indefinitely on the power of applied science alone. Students who pursue courses in science and technology are required to take at least some liberal arts courses. Hopefully, by the time the graduate leaves the institutions of higher learning, the time spent there will have equipped him not only with the technical or technological skill to earn a living, and contribute to economic development, but he will also be equipped with other competencies which will enable him to have imaginative insight and a broad perspective of life.

Valuable links exist which enable university dons to participate actively in the process of nation building. Several university staff have been elected to Parliament. Others serve on statutory bodies like the Science Council, Adult Education Board, and various planning and study commissions. On the other hand government officials and planners are represented on the governing bodies of the University of Singapore, Nanyang University, the Singapore Polytechnic, and the Ngee Ann Technical College. Through these reciprocal links the Government and the institutions of higher learning cooperate in common and national interests.

DEMAND AND SUPPLY OF GRADUATES

It has been estimated that, in order to accommodate the further growth of industries in the present decade (1971-1980), a total of 4,713 science graduates and 2,451 engineers need to be prepared. Between 1961 to 1970, there had been a total output of 2,950 scientists and 348 engineers. Beyond this high-level manpower need to be met by the universities, middle level manpower, to which both the Singapore Polytechnic and the Ngee Ann Technical College have to address themselves, is of the order of 20 times the magnitude of the production effort in the 1960s. Between 1961 to 1970, 1,237 technicians were trained, whereas the projected needs for 1971 to 1980 require an output of 21,375.

The projected figures for scientists can be comfortably met, as long as they are trained within those disciplines of greatest demand to industry. This consideration has influenced the Nanyang University to plan for the introduction of applied science disciplines in its development programme for the next 10 years. Likewise, at the University of Singapore where departments in applied science already exist, the emphasis will be on the production of sound first degree scientists rather than the researchers on rare topics.

A shortage of engineers and technicians is evident when output is compared with projected targets. Only the University of Singapore produces engineers. Well aware of the need, the development plan of the University places the expansion of the engineering faculty as a matter of urgent priority. World Bank aid has been obtained and Phase I in the programme for the improvement of facilities and the resiting of the University at Kent Ridge is in an advanced stage. Upon completion, the student enrolment will rise to ten thousand.

For the same purpose, improvements in the facilities at both the Polytechnic and the Ngee Ann Technical College are projected. Several new courses will be started as demand justifies and the availability of facilities permits. The resiting of the Singapore Polytechnic at the new Dover Road complex will cater for a larger intake.

As in other countries, pressure for admission into the universities is generated by a groundswell of aspiration made possible by better educational opportunities. The aim of Singapore's educational planners is to direct this to optimum results by paying due attention to manpower needs. The controls at admission are therefore benign methods of gentle persuasion, supported by improved programmes in vocational guidance and counselling at secondary school and Pre-University levels. New subjects at the universities and technical institutions are introduced where shortages are evident. These are estimated up to the year 1980. The fact that the institutions of higher learning all carry expansion programmes for the next 10 years indicates that consumers of higher education are not being discounted. What is of primary concern is that the type and quality of education offered will give maximum satisfaction for both suppliers and consumers.

OTHER NATIONAL AND INTERNATIONAL ORGANIZATIONS IN MANPOWER DEVELOPMENT

The importance which Singapore gives to manpower development may be indicated by the number of national as well as international training institutions which operate in Singapore. Some are service organizations which take on training as incidental functions while others are basically training institutions with some consultancy service functions. These are:

1. **The Manpower Development Division** of the Economic Development Board. This was created in 1972 to catalyze the development of labour resources required by the Republic's new phase of industrial growth. The Division processes applications for industrial subsidies, administers the joint industry/Government training centres, and facilitates the entry into Singapore of qualified professionals and skilled workers needed to strengthen the efficiency of enterprises.

2. **The Singapore Institute of Standards and Industrial Research** (SISIR) formulates and promotes industrial standards and also provides consultancy services in environmental control, product development, instrumentation design, and standardization and quality control. Part of the promotion is done through training courses and seminars.

3. **The Fishery Training Centre**, a joint Singapore-UNDP project, established in 1969, undertakes training in offshore and deep-sea fishing techniques. It also serves as a centre for the dissemination of technical information to fishermen.

4. **The Marine Fisheries Research Department** of the Southeast Asian Fisheries Development Centre, a regional project set up in 1969, provides training for local and foreign scientists in oceanography, undertakes marine fisheries research, and engages in the search for new fishing grounds.

5. **The Pig and Poultry Research and Training Institute**, a joint Singapore-UNDP project established in 1968, conducts applied research in nutrition, animal breeding, management, and husbandry practices. Through the extension service farmers are taught modern farming techniques.

6. **The Ministry of Labour** — training of supervisors (T-W-I). Basic courses in job relations, job instruction, job methods, job safety, group work, discussion leading, and conference leadership are conducted in the industrial, commercial, and Government sectors with the aim of increasing productivity and efficiency through effective supervision.

7. **Training Ship 'Singapore'** provides training to youth in basic seamanship on deck, engine room duties, and catering services.

8. **The National Productivity Board**, a statutory body under the direction of the Ministry of Labour. It aims to promote productivity-consciousness in both management, trade union leaders, and workers. It provides training facilities for management and trade union personnel in all productivity techniques. It also undertakes a range of consultancy services.

9. **The SEAMEO Regional English Language Centre** provides training in the teaching of English.

10. **The Centre for Production and Training in Adult Education Television** (CEPTA TV), established in 1972, produces programmes and instructional materials as well as provides training for personnel involved in adult education through television.

11. **The Industrial Training Board**, established in 1973, has responsibility for development of basic industrial training programmes. It also undertakes in-service training to upgrade skills of workers in industry, develops programmes to meet special needs of industry, conducts trade tests, and promotes apprenticeship training.

12. **The Science Council** is actively involved in the promotion of scientific and technological activities in the Republic. It serves as a useful forum where leaders from the public and private sectors can exchange ideas and work out solutions to various problems.

13. **The Science Centre** was conceived to galvanize public, particularly school children's, interest in how science shapes society. It complements and enhances the technical and science education programmes in Singapore schools through provision of working models and demonstrations. It also undertakes the collection, compilation, and analysis of information relating to science and technology.

14. **The Telecommunications Training Centre**, a joint Singapore/UNDP/ITU Project, provides training for technicians and other telecommunications staff.

15. **The Colombo Plan Staff College**, established in 1974, aims to provide, among other things, courses of professional education and training for serving technician teacher educators, key technician teachers, persons responsible for the planning, development administration, and supervision of technician education and training.

16. **The Singapore Institute of Management.**

17. **The Singapore Institute of Personnel Management.**

18. **The Supervisory and Management Training Association of Singapore.**

19. **The Singapore Training and Development Association.**

16 to 19 are essentially professional organizations. From time to time, they organize training courses for interested people on subjects of pertinent significance, either on their own or in collaboration with other organizations.

CONCLUSION

By virtue of her natural and strategic geographical position at the crossroads of international communication and trade routes, Singapore has received many influences, cultural as well as economic. By virtue of her open economy and double dependence for external raw materials and markets, her economy is more than usually subject to external influences. She has become an important distribution centre for services and has also attained a reputation for being an excellation conference location. There is thus a continuous cross-fertilization of ideas. Her planners strain their eyes as they try to see ahead into the misty corridors of the future. They play their roles as futurologists as best as they can, harnessing to their tasks whatever technological skills and information are available but, as often as not, predicting by intuition, by rule of thumb, by experience. To them every day is a new challenge. They have the task of rising to the challenge, exploiting opportunities as they arise. The success of their plans, in all cases, depends on availability of suitably trained and qualified manpower. What Singapore succeeds in doing means that her people are able to move forward a step towards a better standard of living. But in the process she has acquired new knowledge, new expertise, and new experience. These are available for further development but they are also available to neighbouring countries if they are required.

APPENDIX I

FACULTIES AND DEPARTMENTS WITHIN THE INSTITUTIONS OF HIGHER LEARNING SINGAPORE

1. UNIVERSITY OF SINGAPORE

1.1 Faculty of Arts and Social Sciences

Departments of Chinese Studies
- Economics and Statistics
- English Language & Literature
- Geography
- History
- Malay Studies
- Mathematics
- Music
- Philosophy
- Political Science
- Social Work and Social Administration
- Sociology

1.2 Faculty of Science

Departments of Anatomy
- Biochemistry
- Botany
- Chemistry
- Mathematics
- Philosophy
- Physics
- Physiology
- Zoology

1.3 Faculty of Medicine

Departments of Anatomy
- Bacteriology
- Biochemistry
- Medicine
- Obstetrics and Gynaecology
- Orthopaedic Surgery
- Paediatrics
- Parasitology
- Pathology
- Pharmacy
- Pharmacology
- Physiology
- Social Medicine
- Public Health
- Surgery

1.4 Faculty of Dentistry

Departments of Anatomy
Bacteriology
Biochemistry
Medicine
Operative Dentistry
Oral Surgery
Pathology
Pharmacology
Pharmacy
Physiology
Prosthetic Dentistry
Surgery

1.5 Faculty of Engineering

Departments of Civil Engineering
Electrical Engineering
Industrial and Systems Engineering
Mechanical and Production Engineering

1.6 Faculty of Architecture

School of Architecture
Departments of Building Science
Building and Estate Management

1.7 School of Pharmacy

1.8 School of Accountancy and Business Administration

Departments of Accountancy
Business Administration
Economics and Statistics

1.9 School of Postgraduate Medical Studies

1.10 School of Postgraduate Dental Studies

1.11 Department of Extra-Mural Studies

2. NANYANG UNIVERSITY

2.1 College of Arts

Departments of Chinese Language & Literature
Geography
Government and Public Administration
History
Malay Studies

2.2 College of Science

Departments of Biology
Chemistry
Mathematics
Physics

2.3 College of Commerce

Departments of Accountancy
Economics
Industrial & Business Management

2.4 College of Graduate Studies

2.5 Language Centre

2.6 Computer Centre

3. SINGAPORE POLYTECHNIC

3.1 School of Industrial Technology

Departments of Civil Engineering & Building
Electrical & Electronic Engineering
Mechanical Engineering
Production Engineering

Divisions of Marine Engineering & Shipbuilding
Chemical Process Technology
Educational Technology
Mathematics & Science

3.2 School of Nautical Studies

4. NGEE ANN TECHNICAL COLLEGE

Departments of Mechanical Engineering
Electrical & Electronic Engineering
Business Studies

English Language Unit

5. SINGAPORE TECHNICAL INSTITUTE

Divisions of Mechanical Engineering
Mechanical Engineering Drawing & Design
Air-conditioning & Refrigeration
Electrical Engineering
Electronic Engineering

ECONOMIC AND SOCIAL DEVELOPMENT STRATEGIES AND HIGH-LEVEL MANPOWER NEEDS IN THAILAND

Mrs. Vallabha Chartprasert

INTRODUCTION

Since 1961, when Thailand promulgated the First National Plan for economic and social development, the Government has been fully aware that these national plans are extremely important in establishing the economic development policy of the country. The present National Economic and Social Development Plan is the Third Plan, spanning a five-year period and covering fiscal years 1972-76. The previous National Economic and Social Development Plan (1961-66 and 1967-71) involved, mainly, the provision of basic infrastructure, most of which has now been completed. These plans included important projects connected with national highways, feeder roads, irrigation, electrical energy, public utilities, and projects in the agricultural sector, as well as projects concerning expansion and improvement of education at all levels. The Third National Economic and Social Development Plan is the result of a joint effort between the National Economic and Social Development Board (NESDB) and different ministerial and departmental agencies, various public enterprises, and the private sector. In addition, valuable assistance has also been received from various international agencies both on an official and personal basis.

THE THIRD NATIONAL ECONOMIC AND SOCIAL DEVELOPMENT PLAN

The main objectives of this Plan can be divided into three categories:

1. To present a clear picture of the existing economic and social conditions, including environmental changes in the economic, social, and political conditions of the world which have a considerable impact on the Thai economy.

2. To present programmes which will accelerate the economic and social growth of Thailand together with continuing and new projects that will provide a firm foundation for future economic growth and will raise living standards, reduce disparities in social justice, and provide social security for the people.

3. To present a basic strategy concerning immediate problems, particularly the balance of payments, and to present corrective measures to solve these problems. This strategy includes both short and long-term measures which will be the basis for increasing national production.

During the initial phase of the Second Plan (1967-71) the economy progressed rapidly, at a pace of about eight per cent annually. In 1969, economic conditions changed considerably and exports were stagnant. International reserves declined in 1969 through to 1971. Moreover, Government revenues increased only slightly by 2.8 per cent in 1970, compared with the high rate of increase during the eight preceding years. The prevailing short run economic difficulties appear as major obstacles to the successful implementation of the Third Plan. The most significant obstacle to growth has been the increased competition in world markets for products which Thailand exports, resulting in a decline of both prices and quantity of exports. The fall in income of farmers and its consequent adverse repercussions on other sectors of the economy, including Government revenue, in the face of increasing heavy development and security expenditure requirements, makes it vital that certain short-term measures be adopted in the Third Plan to alleviate the situation. The proposed short-term measures are:

1. **Acceleration of export promotion.** Acceleration of production and marketing of agricultural and industrial products both for domestic consumption and export through:

1.1 Diversification of agricultural production; and

1.2 Reduction of industrial production costs to improve the balance of trade and balance of payment positions on the one hand, and to alleviate sectoral imbalances through increased income and employment on the other.

2. **Improvement of Government revenue collection.** Due to increasingly heavy development programmes, the Government needs to formulate new fiscal policies and measures to improve revenue collection. This will be undertaken with a view to bring about greater social justice, to eradicate tax loopholes, and to maximize utilization of revenues.

3. Encouragement of investment from abroad through redirection of investment promotion policy in favour of:

3.1 Industries utilizing local labour and raw materials.

3.2 Industries capable of supporting the balance of payments position.

3.3. Industries located in rural areas.

3.4 Heavy industries with considerable local financial and administrative participation.

Apart from the short-term strategies described above, the Third Plan aims at restructuring the economic and social system to suit changing conditions. The basic strategy is to maintain public expenditures at a level compatible with economic growth and stability. Overall strategies of the Third Plan can be divided into six major categories.

1. **Restructuring of the economy and expansion of economic activities.** One of the main targets of the Third Development Plan is to increase Gross Domestic Product (GDP) at an annual rate of seven per cent. This is slightly lower than the rate of increase of GDP during the Second Development Plan period, which averaged 7.2 per cent. Since the rate of population growth will be decreased from the present rate of 3.1 per cent per annum to about 2.5 per cent by the end of the Third Plan, per capita income in 1976 will be increasing at a rate of about 4.5 per cent, compared with the 4.0 per cent achieved during the Second Plan period.

The basic strategy for achieving this production growth target is to increase agricultural production at an annual average rate of 5.1 per cent per year, as compared with the rate of 4.1 per cent achieved during the Second Plan period. Government measures in this field include accelerated production programmes for certain agricultural products, crop diversification programmes, and programmes to improve marketing. For major existing agricultural products, special emphasis will be given to the improvement of yield per unit area, expansion of foreign markets, and quality improvement. As for industrial development high priority industries will be promoted.

2. **Maintaining economic stability.** The Plan aims at maintaining international reserves at a suitable level. The target for export growth is a rate of seven per cent while the rate of import growth will be kept at the minimum. The following package programmes are required if the above targets are to be achieved:

2.1 **Export promotion.**

2.1.1 The production costs of Thai export products will be reduced through tax measures. Wider markets for Thai products will be sought.

2.1.2 Private investment in export infrastructure which can help to reduce transport and handling costs such as warehouses, storage, handling equipment, and seaports chiefly for exports of grains or mineral products will be promoted. The role of the Government in this field is to improve port and handling facilities including containerization. Industrial estates and an export processing zone will be set up to promote industrial exports.

2.1.3 Marketing studies will be expanded while any regulation, rule or law which hinders export growth will be eliminated.

2.2 **Import plan.**

2.2.1 Domestic production to substitute for imported raw materials. The purpose is to increase domestic products and employment.

2.2.2 Better utilization of imported capital goods. Imports can be saved by promoting better utilization of available capital goods.

2.3 **Improving services.** Insurance, air services, and shipping will be gradually promoted, starting by laying a firm foundation for future expansion. Services for tourists will be improved by greater cooperation with the private sector.

3. **Promoting economic growth in rural areas and reducing the income disparity.** The main targets are to improve the standard of living of the rural population while reducing income disparities. Important measures include:

3.1 Acceleration of agricultural production at an annual growth rate of 5.1 per cent.

3.2 Programmes of small investment in the rural areas such as ditches and dikes, feeder roads, and village development projects will be increased as a means to provide more employment opportunities.

3.3 The reduction of the population growth rate through the expansion of the family planning programme.

3.4 The creation of regional growth centres which will create more employment opportunities for surplus agricultural labour.

3.5 Agro-industries located in rural areas will be encouraged to absorb manpower at all levels.

4. **Improving social justice.** The basic target is to provide Government social services to the public in a more equitable manner. This will reduce the differences in the standard of living among the various regions and among different social groups in the urban area. Important measures include:

4.1 Improvement of the standard of living of the urban population.

4.2 Improvement of the standard of living of the rural population.

4.3 Manpower and employment development.

5. **Promoting the private sector's role in economic activities.** The emphasis is in private investment. Policies and measures in all sectors will be directed to overcome the obstacles and problems facing private businesses, particularly in accelerating export production which is now the major weakness in the economic development process.

By moving on the development path described above, the economic and social system of Thailand will advance towards more stability and equality. Moreover, the implementation of the Third Plan will strengthen the economic foundation for long-run sustained expansion. It is realized that if the policies in the Third Plan are implemented a net real economic gain will be achieved and available natural resources and manpower will be able to move into more productive sectors.

MANPOWER POLICIES AND OBJECTIVES

In addition to effective planning and adequate capital, the success hinges on the size and competence of manpower resources, particularly in the scientific, technical, and skilled categories. It is essential to accelerate manpower development and utilization by integrating overall economic development with a National Plan for Education Development.

During the Plan period the Government will pursue the following manpower policies and courses of action:

1. Placing high priority on reducing the present high rate of population growth by mobilizing public and private resources behind a voluntary family planning programme.

2. Generating enough gainful employment to cope with potentially serious manpower problems, rural unemployment in particular. Strong efforts to combat underemployment and the problems stemming from rural-urban migration will be continued by means of the following actions:

2.1 The introduction of more labour intensive techniques in the construction of irrigation dams, ditches, canals, and tanks; land development highway and road maintenance, etc. The adoption of such a strategy will contribute significantly to the creation of gainful employment.

2.2 Agricultural employment will be promoted through the further intensification of modern practices in irrigated and rain-fed agriculture. The strategy is to promote the use of labour, as opposed to machinery, both within and outside irrigated areas. Activities that can supplement agricultural employment, such as small and medium-scale agro-based industries and cottage industries, will be promoted in rural areas, and will be encouraged to use as much labour as possible.

3. **Promotion of an efficient production system.** It is essential to consider carefully the number, quality, and utilization of manpower with scarce skills.

4. **Improving the utilization of manpower in the civil service.** The experience of the First and Second Plans has shown that there are serious manpower problems within the Gvernment which need immediate corrective action. These problems relate to the allocation of manpower between urban and remote rural areas; certain administrative practices which result in inefficient manpower utilization; methods and procedures used in recruiting Government personnel, and other administrative problems.

5. **Developing an equitable labour policy.** Apparently industry, commerce, and the service sectors have continued to expand, and will become increasingly significant in the Thai economic structure in the future. It also evident that despite the critical importance attached to the development of scarce technical and professional skills, a major part of the Thai labour force will be unskilled workers. The Third Plan, therefore, provides for a specific labour policy designed to afford proper protection and justice for these workers.

MANPOWER AND EMPLOYMENT DEVELOPMENT

Thailand's labour force is expected to increase during the Third Plan period by 2.6 million workers, from 17.0 million to 19.6 million. Apparently, one of the major targets in the manpower and employment development process is to provide employment for an additional 2.6 million workers, so that the unemployment rate in urban area does not exceed 3.2 per cent and the problem of unskilled labour in the cities is minimized. This is a very important problem, as the present rural manpower accounts for 75 per cent of the total labour force. To overcome this problem several measures will be adopted. Family planning programmes to reduce the population growth rate will be implemented. Compulsory education and adult education will be expanded to cope with the growing population. For youth outside the normal education channel, out-of-school training programmes designed to suit the specific professional requirements will be implemented. The training of technocrats for the fields in which manpower shortages are apparent, such as scientists, engineers, agriculturists, teachers, doctors, and nurses will be accelerated. In the fields in which partial oversupply has developed, emphasis will be given to quality improvement.

Unemployment is also a major urban problem. It arises from:

1. Migration of rural dwellers to urban areas;
2. Producing graduates whose training does not meet the country's needs; and
3. Inadequate information on job opportunities and occupation requirements.

Underemployment represents the greatest overall loss of potential income in the rural areas. The most obvious causes are the highly seasonal nature of activities in traditional agriculture, particularly where land holdings are too small to fully occupy the working members of a family. It is an apparent paradox that unemployment persists alongside substantial unsatisfied labour requirements. A case in point is the professional, technical, and administrative personnel which educational institutes train in substantial numbers each year. New graduates are now experiencing difficulty in finding jobs, not because these categories are not needed, but because employers want the experience which the graduates do not have. Another apparent paradox is a surplus of certain skills in urban areas and a shortage of the same skills in rural areas. This is a serious manpower problem for which a working solution must be found.

ROLES OF UNIVERSITY IN THE COUNTRY'S DEVELOPMENT

Since manpower development and efficient utilization of human resources is one of the principal goals of planning in Thailand, joint efforts on research programmes by the universities and other government institutions should be made, such as in the fields of research on educated unemployment, rural manpower development, labour utilization, and farmer's income. At present, the major role of the universities is in producing high-level manpower in various fields. However, the problems of educated unemployed has been occurring since graduates in certain academic disciplines produced by the universities did not match with the manpower requirements of the country.

To tackle this problems, it is urged that different faculties in the universities should undertake a follow-up and an evaluation programme with a view to determining the extent of difficulties involved for their graduates in finding jobs. It is felt that such an exercise will enhance the effort of universities in gearing towards producing the high-level manpower consistent with the country's development programmes.

In this connection, while the action is being encouraged, the NESDB in its role as the Central Planning Agency has already launched an interagency research study on the problem of the educated unemployed. This study is designed to fill the current information gap which is vitally needed for preparation of the Fourth Plan. It is hoped that with the help of the universities and other educational institutions, the information will eventually be available and usable by research, planning, and executing agencies.

At present, nine universities in Thailand have set a target of increasing enrolment from 45,100 to 63,520 by the end of the Third Plan (1972-76), an increase of 40.8 per cent. The increase will be in the field of medicine, agriculture, engineering, science, and education. The budget will be aimed largely towards upgrading those universities. Kasetsart University, which specializes in agricultural training, will also expand its faculties of social sciences and education during this period. Ramkamhaeng University, a new 'open-university' will aim at absorbing approximately 10,000 students annually, of whom most of the students are in the field of social sciences.

In the field of technical manpower, the Institute of Technology should also conduct a research programme to produce technicians and middle-level manpower for growing industries. At present, King Mongkut Institute of Technology is producing high-level and middle-level manpower in the various technical fields. It is expected that at the end of the Third Plan, the Institute with its three branches — Northern Bangkok Technical College, Thonburi Technical College, and Nonthaburi Technical College — will be able to produce enough technical graduates, including technical teachers and factory trainees. The number of students in this Institute, by the end of the Third Plan, will be 3,800, which is 52 per cent higher than at present.

CONCLUSION

The target for national economic and social development has been established with the major objectives of developing and utilizing the human resources simultaneously with natural resources. It is felt that human resources play a leading role in the effort to increase the national productive capacity. Moreover, the development of human resources is a means to promote and to maintain the desired peaceful and stable society.

To improve the efficiency of manpower and to develop employment opportunities, the Government will emphasize the improvement of education at all levels. At the same time, the Government will endeavour to undertake development activities in the various sectors of the economy in order to generate an additional 2.6 million job opportunities, which represents a net addition of the labour force during the Plan period. To achieve this policy objective, vocational and technical education programmes will be improved and expanded. In addition, there will be programmes for the improvement of university-level education which will help to produce highly qualified manpower to satisfy the labour market demands. Due to the rapid increase in the role of the private sector in national development, the improvement of education will be closely geared to meet the demand for manpower by the private sector. To avoid the 'educated unemployed' phenomenon and dilemma, there must be close collaboration among many interested agencies. The Department of Labour, with its responsibility for employment services, must provide clear information on unemployment and shortages of manpower, in terms of occupation and educational requirement. These data must be constantly fed to agencies responsible for education and training such as the University Planning Commission, the Ministry of Education, the Ministry of Industry, and the National Institute for Skill Promotion. With such an information system, continual adjustments can be made in curricula and in a number of training courses. If planning in education and training can be geared in such a way to meet with the labour market requirements, both educational waste and the scale of high-level manpower problems will be reduced.

Above all, the institutional effort and aspirations referred to above must be geared towards and consistent with the overall plan and objectives of national development.

POLICY ISSUES ON POPULATION MANPOWER AND EMPLOYMENT IN THAILAND

Miss Lamduan Pawakaranond*

BACKGROUND

Population and Family Planning

In 1971 the estimated population of the Kingdom of Thailand was 37,841,000 and the average annual population growth rate was about 3.0 per cent, which was among the highest in the world. Rapid population growth was the result of the combination of falling death rate and continued high fertility rate. Public health and nutrition conditions have been relatively good for the level of per capita income. The death rate has declined steadily over the last three decades reaching 10-11 per thousand in the mid-sixties. The decrease in infant and maternal mortality and the reduction in deaths from malaria have been the significant factors contributing to this decline. The birth rate, on the contrary, remained at 40-45 per thousand in the beginning of the Third Development Plan. The fertility rate in Thailand for currently married women aged 15-49 has been estimated at 0.26 in 1969-70. Assuming unchanged birth rate and continued decline in death rate, the population of the kingdom in 1980 will be nearly 55,000,000, a doubling since 1960.

The Third National Economic and Social Development Plan incorporates an ambitious and carefully planned national family planning programme which aims at providing family planning services on a strictly voluntary basis to some 2,000,000 new couples during 1972-75, and at the same time providing maintenance services to previous acceptors. The programme envisages reducing the birth rate to 33 per thousand, implying in turn a reduction of the rate of population growth from 3.0 per cent per annum in 1971 to 2.5 per cent per annum in 1976.

The evaluation of the 1971 and 1972 performance on family planning programmes shows encouraging success. Nearly 400,000 new acceptors were enrolled during 1971 compared to 225,000 in 1970, well over the target of 350,000 for 1971. Performance for the calendar year 1972 rose again to 430,000 well above the target. These developments raise the hope that the target 1976 population growth rate of 2.5 per cent per annum will be reached. In any case the favourable experience thus far should lead to a redoubling of effort rather than a relaxation. The next major policy thrust will be population education, programmes and seminars. National Economic and Social Development Board (NESDB) will work closely with the Ministry of Education in this field.

Economic Growth and Employment

Thailand's labour force grew more slowly than the population, 2.6 per cent as compared to 3.1 per cent, in the last decade and totalled around 17 million in 1973. Even if the government's family planning programme is successful in lowering birth rate, the growth rate of the labour force is likely to rise to over 3 per cent per year as a result of population growth that has already taken place. Consequently, the number of new jobs which must be created annually will rise from the present level of around 500,000 to over 620,000 by 1990.

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During the last two years of the Second Plan the growth in output dropped from an estimated annual rate of 8 per cent to 6 per cent. In the early stages of preparation for the Third Development Plan this reduced rate of growth seemed to be reasonable for the period 1972-76. It was found, however, that the number of jobs available was less than the number of persons needing jobs. Given the rate at which output per worker appeared to be growing during the last decade, a projected rate of 6 per cent growth in GDP would mean that the employment generated would be about 500,000 less than the estimated labour force. An increase of 7 per cent per annum in GDP is needed to maintain the historical level of unemployment and the growth of output per worker.

On the basis of the cited assumptions, the growth rates anticipated for different economic sectors and the proposed employment strategies, it is projected that by 1976 the Plan would have generated employment for almost 19.5 million persons. This means that just over 2.5 million jobs would be created during the Third Plan period.

The revisions of statistical figures on the labour force and employment adjusted on the basis of the newly obtained information from the 1970 Population Census and 1971 Labour Force Survey, indicate some changes in the size of the labour force which was only 15.4 million at the beginning of the Third Plan compared to 17.0 million estimated in the Plan. Nevertheless the labour force increase during these two years was 500,000 as predicted. On October 1, 1970 or at the beginning of the Third Plan the actual employment and unemployment were approximately 15.1 and 0.349 million, respectively. The unemployment accounted for about 2.3 per cent of total labour force.

Experiences obtained in the first few years of the Third Development Plan indicate the fact that Thailand's employment level varies directly with the level of GDP growth — employment increases in accordance with the rate of GDP increase as shown in the Table below:

COMPARISON OF GDP, EMPLOYMENT AND UNEMPLOYMENT GROWTH
IN FISCAL YEAR 1971-73

Year	GDP Growth (%)	Labour Force ('000)	Employment		Unemployment	
			Agri. ('000)	Non-Agri. ('000)	No. ('000)	Per Cent*
Oct. 1, 1970	Beginning of the Plan	15,442	11,831	3,262	349	2.3
1970-71	5.8	15,919	11,903	3,598	418	2.6
1971-72	3.0	16,412	10,717	4,316	1,379+	8.4
1972-73	8.7	16,919	11,300	4,584	1,035+	6.1

* Per cent of total labour force

+The unemployment in these two years, however, were extraordinarily high due to various natural disasters, namely, drought and flood, which had great effects on agricultural production.

Preliminary estimates which are now being revised.

Figures in the above table show that as the GDP growth rate decreased from 5.8 per cent in 1971 to 3.0 per cent in 1972, employment in the agricultural sector decreased at the rate of 10 per cent, which was faster than the decrease of GDP. This implied a withdrawal of 1,186,000 workers from the agricultural sector in the hope of finding jobs in the non-agricultural sector, in which only 718,000 jobs were created during this period. Thus, taking into account the new entrants to the labour market, in 1972 the unemployment accounted to 1.379 million or about 8.4 per cent of total labour force. It is noticeable that when the GDP growth rate increased to 8.7 per cent in 1973 against 3.0 per cent in 1972, although total employment also increased, the increase in the number of workers employed in the agricultural sector was only 583,000 compared to the withdrawal of 1.379 million in the previous year. This phenomenon was due to the existing underemployment in the subsistent sector while the land suitable for agriculture is exhausted during the remainder of this decade. The increase of employment induced by higher economic growth rate in 1973 affected a drop of unemployment from 1.379 million in 1972 to 1.035 million, in 1973, which was equal to 6.1 per cent of total labour force.

Labour Activity and Wage Structure

In the last two years significant labour activities have emerged in Thailand. Strikes were effectively banned during most of the Thanom — Prapas regime. No organized labour movement existed during those times. Labour relations were authoritarian but peaceful. After the passage of the Labour Act in 1972, some 33 labour disturbances took place. In 1973 the number increased dramatically to 322 strikes involving more than 126,000 employees in large scale public and private enterprises in Greater Bangkok as workers sought wage increases to offset the reduction in real income resulting from rising consumer prices. The new Government is more sympathetic to the strikes. The minimum wage was raised by 33 per cent from ฿ 12 to ฿ 16 per day in January 1974 and a workman's compensation fund was established for enterprises in the Greater Bangkok areas. Labour unrest tapered off in early 1974; but a series of strikes in the textile industry, sparked by fears of lay-offs and wage cuts, took place in late spring. Consequently, the government raised the minimum wage by a further 25 per cent to ฿ 20 in June 1974 and ฿ 25 in January 1975. It is also expected that the minimum wage may be increased to ฿ 30-35 sometime next year. The rapid increase in minimum wages and the problems of labour unrest that took place in late 1973 and 1974 have caused employers to hesitate in initiating new investment or expanding their industries. Labour lay-off has been entertained by the employers. Since January 1974 there were approximately 13,000 laid-off workers who came to seek assistance from the Department of Labour. It is estimated that the actual number of workers being laid off was much higher.

The minimum wages in the areas outside the Greater Bangkok have been raised from ฿ 10 per day to ฿ 16 in the north and northeast and ฿ 18 in the south since October 1974. Further increases of these rates will be considered after the impact of the present wage rate on economic growth have been studied. However, it is presently believed that the increase of minimum wage both on the Greater Bangkok and other regions have had great impact on the small scale industries. Further increases should be considered with caution since both reasonably harmonious labour relations and wages that realistically reflect labour's opportunity cost are required to generate the large amount of labour intensive investment in the future.

POLICY ISSUES

1. **Population.** Recently the RTG established a National Family Planning Programme Coordination Committee. The NESDB is represented on this committee and the NESDB Executive Committee also appointed a sub-committee to prepare relevant population consideration for the next plan. It is anticipated that several key issues will have to be considered, including:

1.1 **National Population Policy** is to include not only fertility reduction (family) but also to reflect the qualitative, and distributive effects of population on the development of the country. To do this, an overall policy frame has to be drawn up, and pertinent targets and programmes of action formulated. These must include, *inter alias,* improving the demographic statistical data base, population education, the role of private organizations, and efforts to identify the desired pattern of population distribution, including urbanization.

1.2 **Family Planning.** Important policy issues include:

1.2.1 Evaluation of the effectiveness of the present programme in terms of cost, organization, administration, manpower, and related aspects with a view to improving the programme in the next Plan period.

1.2.2 Determination of suitable means for family planning for specialized local groups and regions, including minority groups like the Northern hill tribes, and the Southern Muslims.

1.2.3 Exploring possible means for better motivating persons to receive the family planning services; and also those who successfully recruit recipients of such services. Motivational schemes may include financial incentives, or various other means of making a clear link between birth reductions and economic improvement.

1.3 **Population Projections.** Revised Population Projections of the future size and composition of the population in Thailand within different regions in Thailand are urgently needed. Projecting the population fertility and also growth rates involves evaluating the effectiveness of the family planning programme in terms of whether the targets of acceptors during the present Plan period have been achieved or otherwise. These projections are also needed for socio-economic development planning of the Fourth Plan and for perspective planning.

2. **Manpower.** Manpower encompasses a very broad area of activities concerning both human resource development (both institutional and non-institutional) and manpower utilization.

2.1 **Development of manpower within institutions.** Much depends on the policy and strategies formulated by the Educational Reform Committee established by the Cabinet. Nonetheless, important issues that have to be considered for each educational level include:

2.1.1 **Primary Level.** Given the present trends, large absolute increases will occur in future in the number of children to be educated. Given the additional resources this will require and also the need to improve existing quality of primary schools, should the compulsory system aim at increasing average grade attained by all entrants that is, shift from 7:5 proportion to 6:6 or others? In the light of studies concerning the rural school graduate's virtual inability to read and write plus the high drop-out rates, would it be appropriate to postpone the starting age or to place more emphasis on quality of education within existing grade structures?

Other key issues include organizational improvement and resolving the frequent administrative conflicts between the Ministry of Education and Ministry of Interior.

2.1.2 **Secondary Level.** The Secondary level includes the lower and upper academic and vocational streams, the comprehensive schools and the technical institutes of school issues. Among the key ones are:

2.1.2.1 According to experience from many quarters, the vocational system has not produced graduates which satisfy the labour market requirement. The question then is how to improve this system.

2.1.2.2 There have been suggestions that one way is to consolidate limited resources of upper academic, vocational, and technical education into community colleges in rural areas. These institutions would have some access to possible further university education and provide at the same time different terminals for entering the labour market.

2.1.2.3 Alternatively, the present vocational education system could be overhauled drastically and keyed more to demonstration teaching approaches.

2.1.2.4 Either way, certain basic changes are imperative. First, the vital need for highly-skilled and middle-level manpower must be recognized;
Second, given such recognition, every effort must be made to improve the systems which produces such manpower;

Third, it must be recognized that institutional facilities are not designed to produce skilled persons but rather trainable persons;

Fourth, the present conditional requirements for recruitment of teachers which heavily emphasizes degrees is not suitable for this type of education;

Fifth, the system must be geared to the goals of current development planning which stress the closing of the existing inequitable income gaps. Thus, rural education and training must be consistent with and complementary to rural research, extension, employment, and income generation.

2.1.3 **University Level.** University education is growing more controversial. There is a contention that this level of education is comparatively the most expensive of all. Since the RTG has been pouring substantial investment into this level and the privilege is at present limited to too few, the issue is, therefore, whether a policy re-orientation is needed. In particular, a greater use of realistic fees and charges such that higher institutions could pay their own way deserves serious attention. (Such an approach would also require scholarships for lower-income students).

2.2 **Non-Institutional Manpower Development.** Non-institutional manpower development essentially involves training activities outside of the school 'pipe lines . At present there are far too many government agencies participating without coordination and with only limited participation by the private sector. Even more important is the fact that at present three out of four children finishing the fourth grade do not continue formal education. This means they are learning from non-institutional sources. Yet the Government has been pouring nearly 30 per cent of its development budget into the school pipe line. This calls for a clear policy as to what needs to be done, which groups are to do it, and how it is to be done, to build manpower training resources outside schools. Given such a national policy, the overall frame for different types of action programmes with corresponding targets and resources to be committed will have to be worked out in a manner similar to the population consideration referred to earlier. Implicit within such considerations is the need to encourage and promote more participation by the private sector and the necessity of gearing training programmes to plan employment objectives.

2.3 **Manpower Utilization.** Government organizations and their personnel serve as important 'change agents' between the national development goals and the people. Organizationally, specific mandates between ministries and departments will have to be clarified for purposes of avoiding duplication and better agency coordination. Even within a single ministry, there often remains a key problem between central and rural authority to be ironed out. The regional agricultural development centres represent a good case in point. In terms of the government manpower, the key issues centre upon what and how to deal with present obstacles to personnel recruitment, deployment (substantial number of unfilled vacancies for posts in remote areas), more realistic pay scale and incentive considerations, research careers, and better utilization (professionals — para-professional personnel) of skills.

3. Employment, Income and Wages

3.1 **Employment, Unemployment and Underemployment.** Pertinent views on this subject should be examined within two separate but inter-related contexts: what needs to be done for those already in the labour market who are or may become unemployed, and what is to be done to absorb future entrants into the labour force.

3.1.1. For probable lay-offs of those already employed, action-programmes must be geared towards specific industries which encounter trouble, namely, the textile and construction industries. In this connection, specific recommendations have already been proposed in terms of fiscal, monetary, and employment generation measures.

3.1.2 Equally or even more important is how to provide adequate job opportunities for future labour market entrants. To deal with the question effectively, employment generation must be an integral part of development planning and considered together with other important policy considerations, namely, investment policy, regional development strategies, agricultural and non-agricultural development, and so on. Priorities will have to be established, and possible trade-off effects will have to be considered. The issue seems clear, but an effective policy to deal with it is not easy to see.

3.1.3 It is often alleged that serious underemployment exists in many sectors, yet apart from the chronic seasonal problem in agriculture little real evidence is available. Research on this point is badly needed before the policy issues can be stated with clarity. Moreover, many of the other issues and policies discussed in this paper would also touch on this issue.

3.2 **Income and Wages.** Considering the decision to raise minimum wages further effective from early next year, several issues and repercussions need to be examined:

3.2.1 What are the possible repercussions in the provincial areas — particularly in terms of the impact within areas adjacent to the localities where minimum wages are higher?

3.2.2 The impact in terms of operational costs on small-scale entrepreneurs and farmers who form the core of the Thai economy outside the industrial sector.

3.2.3 How are payment-in-kind to be treated?

3.2.4 The effect upon export potential and promotion policies.

3.2.5 Effects on future foreign investment and economic activity in Thailand.

3.2.6 Is the law minimum wages to be applied across the board or should there be special cells for exempted categories?

3.2.7 What are appropriate ways and means to adjust wages in relation to the changes in living costs and productivity?

3.3 **Workers' Welfare and Social Security.** It is already recognized that much of the labour unrest and the decisions rendered by the Government was not purely economically-based. It is also generally agreed that trouble in the future can be made less serious by the development of unionization of workers. Thus systematic collective bargaining, and more effective provisions of labour relations should be promoted and strengthened. In terms of the welfare for labour, currently there is in operation a scheme of Workmen's compensation with limited geographical coverage. Also a scheme for provident funds has been approved by the cabinet. Just recently the Ministry of Interior also proposed to introduce a social insurance scheme covering sickness and maternity. In the light of such developments, there are several pertinent issues involved:

3.3.1 How has the Workmen's Compensation Scheme progressed? Considering the current experience, should the project be extended to include other areas of the country?

3.3.2 Depending on the answer to the above, should the underwriting of such risk be undertaken by private insurance carriers with close supervision by the Government?

3.3.3 Assuming affirmative decision to go ahead with the scheme to insure against sickness and maternity and for provident funds, which type should be installed first?

3.3.4 How is the system to be operated in terms of organization, administration, personnel preparation, finances, and benefit provisions?

3.3.5 Above all, how will all these programmes, including the raising of minimum wages, affect the employers in terms of their cost of operation? And what are the possible effects on this on employment and investment?

SUMMARY

These are a few of the most important issues which confront the RTG in developing the Fourth Five-Year Plan insofar as Population, Manpower and Employment are concerned.

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PART II

THE RESPONSES OF SOUTHEAST ASIAN UNIVERSITIES TO HIGH-LEVEL MANPOWER NEEDS

THE RESPONSE OF THE THAI UNIVERSITY SYSTEM TO HIGHER-LEVEL MANPOWER NEEDS

Apichai Puntasen

INTRODUCTION

As an instutition for higher learning, a university is expected to play many supportive roles in a country's development effort. Universities in Thailand are by no means an exception to this claim. In order to understand how well a university can live up to this expectation, decisions on what roles a university should play must be agreed upon by both the university and the society of which it is a part. It should be quite fair to make one general statement — that a society always expects a university to do more than it can achieve. One supporting argument made on this point is by David Lim in his paper of 'The Role of the University in Development Planning in Malaysia'. The opening statement of his paper is as follows:

> One of the crucial constraints to growth in less developed countries is the shortage of human capital. It is widely believed that universities in these countries, if properly organized and administered, can do much to alleviate this problem, and that the lack of planning expertise in the public sector, which results in the formulation of inconsistent and unrealistic plans, can be solved partly by the active participation of academics in government research and consultation.[1]

In this paper he has given many reasons why universities, especially in Malaysia, are not properly organized and administered to cope with such responsibilities. Shortcomings of syllabi, incompatible time schedules and aims, and incompetency in organizing large-scale projects, are just a few among many other reasons given in his paper. Finally, he concludes that:

> The characteristics of Malaysia's situation are not unique, and these findings may well have an area of applicability which extends beyond Malaysia.[2]

Another point to be noted is that, as an institution for higher learning, people always interpret a university as a place for high-level professional training. Although this interpretation of a university cannot be denied totally — a few areas of training in a university are really professional, for example, Dentistry, Medicine, Pharmacy, and Engineering — the whole truth does not come close to what is claimed because most areas in higher learning are purely academic. And if this latter claim is correct, the purpose for having a university functioning the way it is anticipated by the public does not make much sense. Evidence supporting this argument is overwhelming. For example, in all the declaration of universities' objectives in Thailand, there is no single line saying that the university is organized for high-level professional training. In the declaration of the objective of Thammasat University, it is stated that:

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[1] David Lim, 'Role of the University in Development Planning in Malaysia', *Minerva XII*, January 1, 1974, p. 19

[2] *Ibid.*, p. 32

> Thammasat University is organized for learning and investigating in all scientific knowledge in order to promote higher learning and national culture.[3]

Some universities, such as Chulalongkorn, have gone further to include serving the community as one of the university's objectives.

The reason most universities avoid mentioning the objective of being the place for high-level professional training is because they know that they are incapable of doing so. In fact, universities have never been prepared to do so. Historically, universities have established themselves as being exclusive places for educating exceptionally few intellectuals. With this established reputation, universities are sometimes sarcastically called 'ivory towers'. This latter view of universities may seem to be the one which can be shared only by the extremist at the other end. However, a great deal of sense can be made out of such an image of universities. First of all, it tells us not to be too optimistic about what universities can do for the society. At the same time, it also reminds us of the fact that universities are now staggering between these two conflicting images. Unless clear understanding on what roles universities are now undertaking is reached, there will not be much sense trying to figure out how well universities are doing their jobs.

CONVENTIONAL ROLES OF UNIVERSITIES

From the point of view of universities, it may be quite nice if they are allowed to stay aloof as 'ivory towers'. However, with the handsome amount of expenditures requested by universities each year, the public cannot tolerate having universities operated that way, especially when countries are poor and all scarce resources must be utilized optimally. Unfortunately, with such conflicting natures, universities cannot be expected to perform any single task assigned by the public satisfactorily or else they must be organized in a different form.

Being institutions for higher learning, training people for professions is certainly not the only important function of universities. Training services provided by universities are usually the process of transmitting the present state of knowledge accumulated in universities to students. The question of whether all the knowledge transmitted by universities has any practical professional application is not of universities' concern. The rationale adopted by universities in offering such training is that universities are created to preserve and to keep up with all developments in scientific knowledge. But this does not mean providing any or all specific kinds of training. In fact, transmission of knowledge is only one of many other ways to implement the above objective. Investigating and searching for advanced knowledge by study and research are other main activities carried out by universities to achieve the same objective. The latest and still expanding function of universities is the provision of academic services to communities. This last kind of service offered by universities was launched through public urging. Because universities are now expanding at a rapid rate, the public feels that universities, as parts of communities, should make some such direct contribution to the larger society.

As substantial amounts of annual budgets are now being allocated to universities in order to finance all these three activities, i.e. training, researching, and servicing, the public should have the right to make the following set of inquiries to universities:

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[3] See the Thammasat University Act of 1952. Section 4. p. 2

1. How much money do universities need to finance these three activities, how much should be allocated for each activity, and finally what are the justifications for doing so?

2. How many types of training are universities now conducting, are they useful to the society, and what should be the appropriate number of graduates from each area of their training?

3. What kinds of scientific knowledge are now being developed in universities, and do they have any practical value?

4. What kinds of services are universities now providing to communities, and are they useful?

Theoretically, these four sets of questions deserve quite clear answers before any amount of money is allocated to universities. Unfortunately, at present no university in Thailand can provide any satisfactory answer, even when questions are only limited to those in the first set. There are two sources of difficulties in trying to compute the costs of each activity separately. The first problem comes from the difficulty involved in classifying actual activities organized by universities into these three theoretical concepts. This source of difficulty can be explained by the fact that the end results of any project conducted by universities usually contain some combination of these three activities. For example, a university library is organized to support the improvement of training, studying, and researching, and at the same time it is also made available for public use. Therefore, it is very hard to figure out which part of a university library service goes to which university activity. A second set of difficulties in the classification of the costs of each activity is due to the system of university accounting. At present, the university accounting system is not oriented to facilitate the distinction of costs among these three activities. Costs are usually divided mainly into two groups, administrative costs and academic costs. In each group, they are divided into recurrent costs and capital costs. There is no classification of costs by each project undertaken by a university. Unless the university accounting system is related to objectives, it will not be possible to classify university costs by its activities, the way they should be.

Coming to the second and third set of inquiries, once agreement is reached on what universities must do in their actual training services, universities may attempt to answer the last question in the second set of the inquiries on what should be the appropriate number of graduates to be trained in each area. Before proceeding any further, there must be some more classification on why university graduates are employed on the basis of the present system of university training. In addition to being employed on the basis of their professional skills, university graduates may be employed for other reasons. Employers may hire the graduates only because they believe that university graduates are more able than high school graduates. When justification is made simply on this basis, some specific training which the graduates may have received from universities will carry virtually no weight in employers' decision. Under such circumstances, the only service rendered by universities is just to screen and give indications of ability to employers. If this is the only service needed, there should be some other much less expensive ways to provide such information.

Furthermore, there are some other considerations in employers' decision-making processes in hiring university graduates. The graduates may be employed simply because the wages (in proportionately real terms) which they request are not much higher than that of the high school graduates. So long as the wage differences between university and high school graduates are not great, there will be incentive for employers to add more of the university graduates to their lists. The more university graduates in the staff list the more impressive the list appears. There must be a long list of other reasons for university graduates to be employed, unrelated to the training provided by universities. Attitudes on some specific degree preferences of employers, and family background of graduates are included. When the graduates are being employed on these bases, there is no scientific way to estimate future requirements of graduates in areas of training in advance. Statistically, there should be some acceptable method for forecasting future trends based on the observed employment in the past. However, this kind of statistical prediction will not lead to any sensible planning. Therefore, it has no useful economic value.

The last but not least set of answers to be supplied by universities is on the part of university services to the communities. Again, there is no way that universities could supply any satisfactory answers to this final set of inquiries. Firstly, there is the same problem in distinguishing costs for providing services to community from the costs of other activities of universities. Secondly, there are elements of uncertainty in the nature of services provided by universities. Most services given by universities are of inventive and irregular nature. No other institution will be in a position to offer these types of services better than universities. The services are of an irregular nature because they are only called for by society at some particular time. Examples of such services are the participation of all the universities in Thailand in the campaign for democracy in the summer of 1974, various university-volunteer projects designed to cope with specific problems in rural communities, and public seminar discussions and exhibitions at the time universities sense that they are called for. Another set of services are those of inventive nature. Universities invent these kinds of programme partly for their own innovative benefits, since no one is likely to have experienced such programmes before. Examples of these services which Thammasat is now carrying out are some specific welfare programmes in slum areas, the Sunday labour school project, the graduate volunteers for rural development programme, and the study for the development of the Meklong Basin. Because of the uncertain and innovative nature, it is very hard to evaluate the usefulness of these services in terms of costs and benefits. The main obstacle to such evaluation is that there is no rational basis for the calculation of benefits from such investments, even when the attempt on the calculation of costs has been successful.

SOME CHARACTERISTICS OF HIGHER TRAINING IN THAILAND

After some rough agreement on the conventional roles of universities is reached, it is the time to observe how well the roles now accepted by the Thai universities are performed. Since it is quite clear by now that not much can be said explicitly on research and service aspects of universities, discussion in this part will be limited only to the training aspect of universities. After all, this aspect is the most interesting one, so far as the question of the development of human resources is concerned.

Sadly, higher education in Thailand is now doing a disservice to the country. No matter what criteria are used in evaluating the performance of the university system in its role of supplying graduates to the economy, evidence seems to indicate one common trouble spot, the over-production of graduates in the fields of Law, Social Sciences, and Education. From the study of earnings of university graduates in Thailand done by Mark Blaug in 1970, the following results are observed:

> A person with some university training in SEA (Science-Engineering-Agriculture category) (the author) may expect the highest earnings, followed surprisingly enough by a person with military training. Humanities-Fine Arts (HFA) students rank third, probably because architects are included here, but not until fourth place do we find person with medical training. Less surprisingly, social science major rank fifth, followed by education students, whose field at least in terms of earnings received is statistically not different from persons with no college or university training at all.[4]

From my own study of cost-benefit analysis, among the groups of graduates which have the highest internal rate of return in Thailand are Engineering, Commerce and Accountancy, Pharmacy, and Arts and Humanities respectively.[5] All other fields which are included in my study such as Law and Political Sciences have the lowest internal rate of return. The field of Education, however, has not been included in my study.

The Report on the Evaluation of Educational Development Planning also indicates that in 1972 the number of graduates in the field of Education is higher than the target (estimated by the manpower-requirement approach) by 24.3 per cent, and the number of graduates in the fields of Law and Social Sciences is higher than the target by 27.4 per cent.[6] This problem will be aggravated when the graduates from Ramkhamhaeng University[7] enter the labour market in 1975. The most unfortunate thing about these graduates is that they will consist mainly of graduates in the fields that already have excess supply, namely, Law, Social Sciences, and Education.

It is not quite fair to put all the blame on the university system for being irresponsible to the higher education programme laid down by the national policy. The failure of universities in being unable to comply with the national manpower programme is largely due to the inconsistency in incentive schemes. The university system may have to share part of the blame in not collecting fees which reflect the actual costs of operating universities. However, the bigger part of the blame should go directly to the inflexible pay-scale regulated in the civil service system.

At present, the public sector in Thailand is still the dominant sector so far as employment of university graduates is concerned. Its regulated pay-scale must certainly have a strong effect on the pay-scale of all other sectors in the economy, and certainly more so on the decisions of secondary students on their future professions. The problem starts from the structure of this pay-scale which allows the wide range of difference between the rate paid to a university graduate and a grade ten school-leaver. It only takes six years for the tenth grade school-leaver to get a degree, while it takes fifteen years of work for that same person before he could have earned the starting salary of a university graduate. It is quite obvious that if a person has an option for further study, he will not stop at the tenth grade. Worst of all, there is no difference at all between the rate paid to a tenth grade school-leaver and a high school graduate. Because of such an incentive system, a high school graduate cannot quit school and work upon his graduation. If he stops right then, he must take into account the fact that he has already lost his foregone earnings for the past two years, the time that he has been in school. Furthermore, his counterpart, the tenth grade school-leaver, who has decided to work two years before him will now be two steps ahead of him in rank. For that high school graduate, if he decides to work, he stands a good chance of ending up being a subordinate of his counterpart. On the other hand, if he compares the number of years which he must work and the number that is required for his further study (in order to get the same pay-scale), he will find that future benefits for him are now much greater than he could have expected on the completion of the tenth grade. The ratio between the number of years required for his study and his work is now reduced to 4:15. Because of such a bad incentive structure, once a person has finished high school, the one and only rational alternative is [illegible] push further for a degree.

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[4] Mark Blaug, *The Rate of Return to Investment in Education in Thailand*. A Report to the National Educational Council on the Third Educational Development Plan, December 1971, (Bangkok: National Education Council, 1971), pp. 3-22.

[5] Apichai Puntasen, "Manpower and Educational Planning: An Application of a Simple Integrated Model to Selected Groups of Thai University Graduates, unpublished Ph. D. dissertation, Vanderbilt University, 1973, p. 88.

[6] National Education Commission, Report on the Evaluation of Educational Development Planning in 1972, unpublished report of the Division of Planning, National Education Commission, July 1974, p. 25.

[7] The university was founded by a group of political lobbies influenced by political pressure from the great number of high school graduates who could not get into universities. The university began its operation in 1971 with the system of unlimited admission.

Even worse, variation in pay-scale for college and university graduates regulated by the civil service commission does not reflect the difference in market demand for different types of training. The variation is based on the difference in number of years required in different fields of training. Since there is no distinction whatsoever, in terms of payment offered in the public sector between the difficult and the easy subjects, the ones in demand and the ones which are not, there is no reason why a person should not try to get a university degree with minimum effort. Because the seats available in universities are limited by the capacity of the existing institutions, pressure on the Government demanding expansion in the number of places in universities has been increasing every year. Since the expansion of admission in the country's most demanding areas is quite expensive, and the main pressure is to get degrees with the minimum learning efforts, more graduates in the undesirable fields are produced while problems of shortage in the 'demanding' areas remain unsolved. At this point, universities must share part of the blame by their current practice of staying aloof. They could help relieve some pressure from this arbitrary demand for schooling, if the fees collected by them more closely reflected the true operating costs of universities. For if the fees are collected in that manner, encompassing earnings foregone, and chances to get degrees, high school graduates must also take the effect of immediate financial burden into consideration. The pressure on the Government will be much less, if high school graduates do realize this financial responsibility.

At present, the fees being collected from students constitute only five per cent of total university expenditures. Proportionately, the fees charged to university students are much less than those charged to students in secondary education. The fees collected from these secondary students are almost ten per cent of total expenditures on education for this level.[8]

The above evidence has indicated quite clearly that the performance on the part of manpower training of higher education in Thailand has not been very satisfactory, in terms of both development and redistributional aspects. The expansion of university enrolments in the fields which are already in surplus only leads to the very unintelligent use of limited resources. Worst of all, the present incentive system has also brought about undesirable attitudes toward degrees and the whole learning process. The problems of graduate unemployment and graduate underemployment, which many developing countries are trying to avoid now seem inescapable. High school graduates and graduates in higher vocational training find themselves on the run to universities because the positions previously occupied by them are now given to persons with university degrees. Resources which should be used in other development efforts are now wasted at the university level. In terms of income redistribution, higher education in Thailand only brings more inequality to the redistributional pattern of the country. Given the quality of primary education and the total amount of resources now being allocated to education, one can claim that higher education in Thailand is financed at the expense of quality of education at the lower levels. Normally, one student enrolled in a university is supported at the expense of 15-50 pupils in primary education, depending on the fields of his training. One medical student must be traded for 50 pupils, and a student in social sciences, the least expensive field, is traded for 15 pupils.[9] The implication from such a method of allocation is that children from poor families receive only a poor quality of primary education. Therefore, they have almost no chance to advance further up the educational hierarchy. The poor basic education which they have received together with their poor family background and their high opportunity costs are the main obstacles to their desire for advancement. Children from rich families who can afford education of good quality stand a much better chance of being enrolled in universities where costs are borne mostly by the Government. This situation can be summarized in one short phrase: 'those who have, get more'.

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[8] Nicholas Bennett, Namsap Chantanakom and others, *Problems of Financing the Thai Educational System*, (Bangkok: Educational Planning Division, Ministry of Education), June 1972, pp. 55-56.

RECOMMENDATION

With the present system of university finance and the incentive structure in civil service, misallocation of resources in higher education cannot be solved by just organizing a better method of planning. No matter how sophisticated and elaborate the plan is, it will have no practical value because it cannot be implemented under such an incentive system. In fact, in any society, the plan cannot be expected to offer more than what is called, 'subsidiary service'. The main solution to any economic problem in any society still depends largely on how to correct the incentive system such that the mechanism of the 'invisible hand' is set to work. The classic example often mentioned in this regard is the problem of graduate unemployment in India. Unless the Indian Government has enough courage to tackle that problem by the correction of incentive system directly, there will be no hope of solving this difficult problem. The longer the period the problem is left untouched, the more is the intensity in the degree of the problem. Thailand will run into this very same problem some day in the near future, if she does not try to deal with it promptly.

To solve this incentive problem effectively, correction must be made on both the pay-scale regulated in the civil service and the fees collected by universities. The pay-scale in civil service must be made completely flexible so that the rate of payment reflects the intervening forces of the supply of and the demand for graduates in the market. Furthermore, the scale of payment must be subdivided into the different rates paid to persons having different amount of education. The scale should be arranged such that a person would not feel any tremendous loss at the time he decides to quit school for a job. This scheme of payment will help relieve pressure on a person so that he does not have to be pushed for a degree, if he has no real desire to do so.

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[9] Nicholas Bennett, Resources for Educational Expansion, Reform and Transformation in Thailand, unpublished paper presented at Samila Hotel, Songkhla during the conference on Mass Education on August 4-7, 1974, p. 4

Finally, universities must collect fees on a basis which allows the rate being charged to reflect the differences in actual costs of operating different educational programmes. With this new scheme of fee collection, the gap between the social rate of return and the personal rate of return will be reduced. The demand for education of an individual for his own benefits will be more consistent with social benefits. One last point to be made on this university pricing policy is that, for the sake of social justice alone, if possible, the fees should be high enough to cover universities' training costs, so that resources now allocated to universities for this purpose can be utilized to improve the quality of education at the lower levels.

After all these corrections are made, planning should be allowed to play its role, the 'subsidiary' one. There is even a stronger call for good planning after the system of consistent incentives has been set to work. Good planning will be much more useful because it can be used to gear the economy to directions commonly decided by members of the society. For example, if some combination of the redistribution and growth aspects is commonly desired by the society, the plan can be geared into such a direction.

Moreover, without any specific direction indicated by the society, planning is still helpful for it can be used in combating the classical problem of instability, known to economists as the cobweb theorem. This problem is either caused by the excess demand for or the excess supply of any product as the result of the miscalculation of a producer of the future demands for his products at the beginning of the production process. The lengthy nature of the production process is the original cause of this problem. This long production process deters the producer from the prompt adjustment in the quantity of his product to match the change in the demand for it. The production process in education is exactly of this nature. Good educational planning can do a great service at this point, if it could help estimate the demand for manpower with reasonable accuracy, so that the number to be supplied will be planned accordingly. It must be emphasized in this last line again that, without the elimination of the incentive problem planning efforts will be of no use because it will have no chance of being implemented.

It should be noted here that the actual action to correct this problem of incentives must come from administrators and politicians. Some political complication from such correction should be anticipated in advance. Nevertheless, no matter how difficult the task may appear to be, it is better to do something right now. The problem will only become intensified if nothing is done, and then be much harder to solve. If it is not solved, eventually the problem of graduate unemployment will be something that the society must learn to live with.

AN ECONOMIC PERSPECTIVE OF UNIVERSITIES AND MANPOWER DEVELOPMENT

Pang Eng Fong

INTRODUCTION

In the late fifties, research in the developed countries suggested that the materialist conception of economic growth may not be altogether immaculate; income growth, it was discovered, could not be fully explained by increases in physical capital and labour.[1] There was a puzzling 'residual' that demanded explanation. However, instead of being explained, the 'residual' became quickly associated with, and even identified as, education.[2] This development accorded to education a new dimension and significance, particularly in growth-conscious countries burdened with a burgeoning labour force. As a result, a new perspective emerged in which high-level manpower came to be viewed as a key ingredient in the push for development. Higher education was assigned the strategic task of producing the required high-level talents, and was expanded vigorously in most of the underdeveloped world. In Southeast Asia university enrolments more than doubled in the sixties while expenditures increased even more rapidly. However, educational expansion has not been accompanied or followed by income or employment growth in most of the countries.

Instead, there are growing signs of graduate unemployment and underemployment, and many planners and administrators now appear to have second thoughts about the role of universities in the development process: the promise of high returns from investing in higher education has turned out to be mostly a consumption of scarce resources.

Why have many universities failed to provide the catalytic manpower needed to spur economic growth? One popular and appealing explanation is that universities have failed to generate the requisite skills for development because they produce the wrong product mix — too many arts and humanities graduates, and too few engineering and professional graduates. However, the explanation is incomplete; it does not explain why presumably rational individuals would continue to enroll in large numbers in courses for which there seems to be little market demand.

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[1] The classic studies are those by Solow and Denison. Solow suggested that close to 90 per cent of the U.S. growth between 1929 and 1955 maybe attributed to technical progress. Denison in his pathbreaking research on the sources of growth attributed 23 per cent of the economic growth in the U.S. between 1929 and 1957 to education. See R.M. Solow, 'Technical Change and the Aggregate Production Function', *Review of Economics and Statistics*, August 1957 and E.F. Denison, *The Sources of Economic Growth in the U.S. and the Alternatives Before Us*, New York, 1962.

[2] To be sure, there were many cross-section studies which helped this process of identification. Perhaps the best known of them is the one by Harbison and Myers who found a close correlation between their composite index of human resources (essentially a weighted index of educational enrolments) and per capita income. See F. Harbison and C.A. Myers, *Education, Manpower and Economic Growth*, New York: McGraw-Hill, 1964. The major problem with their study, as with others involving international comparisons of education and development, is that it contains no theory to explain how a high level of educational attainment in the workforce or population leads to a high per capita income level. It is not entirely clear if a country is rich because its people are well-educated or its people are well-educated because it can afford to spend more on their schooling. Furthermore, it is not realistic to expect that such studies can furnish universal guidelines for the optimal development of educational systems because of the large variations in political and social systems. For a cogent critique of the Harbison-Myers study and others on the contribution of education to economic growth, see Mark Blaug, *An Introduction to the Economics of Education*, Penguin, 1972.

The answer to this puzzle lies in the financing and supply of higher education. Most states heavily subsidize higher education, and given the relatively high graduate earnings prevailing in most Southeast Asian countries, the result is a large divergence between individual and societal returns to education. In other words, a university education is a profitable proposition for the individual, despite the possibility of a long period of waiting for employment.

A supplementary explanation is that many universities have not been able to structure their enrolment patterns to meet anticipated manpower demands of the economy because they do not know the future demand patterns for high-level manpower. If only the manpower planner would tell universities what to produce, the problem of an inappropriate output mix would be resolved.

The snag is that manpower planners cannot provide precise guidelines for developing high-level manpower as current forecasting techniques are not sufficiently reliable. This paper will review briefly some approaches to the planning of higher education, and make some suggestions as to how universities themselves can play a more active role in assessing the demand for university-educated manpower.

THE MANPOWER REQUIREMENTS APPROACH TO EDUCATIONAL PLANNING

One widely used technique for forecasting the demand for high-level manpower is the so-called manpower requirements approach. This approach, first used in the Organization for Economic Cooperation and Development (OECD) countries, attempts to predict the manpower patterns required to produce a given level of production. Variants of this method are used in the manpower plans (where they exist) of many Southeast Asian countries. A typical sequence of the manpower requirements approach to educational planning runs thus:

1. Project the GDP in a target year;

2. Project sectoral output in the target year;

3. Forecast the sectoral distribution of workers;

4. Convert the sectoral labour requirements into mutually exclusive occupational groups;

5. Sum up the occupational requirements across sectors and translate the occupational requirements into educational needs.

Once the educational requirements are established and the extent of occupational attrition determined, an enrolment plan for all levels and types of education can be developed.

This methodology has been widely criticized and it is useful to note the major criticisms. First, the approach has a deterministic bent in that manpower requirements are rather rigidly determined by the technology of the production system. The manpower required to achieve a desired growth rate is not based on an economic concept of the demand for labour. Rather, it is determined through a series of fixed technical coefficients, which implicitly assumes that the existing manpower-output coefficients are optimal. But the rationale for manpower planning is presumably that the allocative mechanism has been defective in the past. To project manpower requirements on the basis of existing relationships between the structure of manpower and output may therefore reinforce, rather than correct them.

Second, the approach ignores relative pay levels. It blithely assumes that the relative earning levels of educated manpower do not change significantly over time, a palpably false assumption as the relative demand for workers is affected by changes in earnings.

Third, the approach also assumes that the possibility of substituting capital for labour or one grade of labour for another is minimal. This assumption has been shown to be dubious; many studies indicate that there is considerable room for substituting one type of labour for another.[3] Furthermore, the flexibility of substitution increases with time and since university manpower generally takes years to produce, the possibility of substituting other types of educated labour for university-trained manpower is enormous.

Lastly, and perhaps most importantly, the translation of occupational requirements into educational need is a highly questionable one. It is doubtful if there is a stable occupation-education matrix for most occupational groups.[4]

There is also little evidence to suggest that one specific level of education is needed for competent job performance. Job competence is a function of many related factors such as abilities, temperament, and motor-skills. In short, the optimal level of education and training is hard to define for most occupations.

In the context of many ex-colonial nations in Southeast Asia, the computation of the average level of educational attainment for an occupation is particularly suspect. As the general level of education rises in these countries, there is a pervasive push towards higher and higher educational qualifications for every job. Therefore, manpower planning based on existing levels of education may be misleading.

In practice, the manpower requirements approach has fostered a tendency among educational planners to exaggerate the educational investment needed for economic development. Indeed, it may well be that the ubiquitous anxieties about 'shortages' of skilled high-level manpower are generated more by misplaced emphasis than by the imperatives of the job market.

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[3] In a study on the Brazilian capital goods industry, Nathaniel Leff showed that the expansion of this industry was achieved with very little educational investment and tariff protection. An inadequate supply of labour led to a widespread substitution of technicians for engineers; about half the technicians learn the trade on the job. Leff's study casts further doubt on the widely-held belief that economic development was preceded or accompanied by a large expansion in the educational system. Similar studies on Japan and Mexico suggest that the economic take-off in these countries preceded a massive increase in educational enrolment. Even in Singapore the rapid growth which began around 1969 took place before the extensive revamping of secondary and higher education. However, this is not to deny that the provision of highly trained manpower is not needed to sustain and further accelerate economic growth. The point here is that many countries have achieved economic take-off without substantial educational investments. See Nathaniel Leff. *The Brazilian Capital Goods Industry, 1929-64*, (Cambridge: Harvard University Press, 1968), pp. 85-87, and also David H. Clark, *Employment Promotion in Singapore*, unpublished paper, April 1974. For evidence on the substitutability among various grades of educated labour, see Samuel Bowles, *Planning Educational Systems for Economic Growth*, (Cambridge: Harvard University Press, 1969).

[4] David H. Clark in a report on a survey of manufacturing firms noted a considerable spread in the distribution of educational attainment among persons holding managerial jobs. See David H. Clark, 'Manpower in Larger Manufacturing Firms in Singapore'. *Malayan Economic Review*, Vol. XVI, No. 1, (April 1971), pp. 33-45

ECONOMIC PERSPECTIVE ON HIGHER EDUCATION

If the manpower requirements approach to educational planning is flawed, what other methods are there to help the university plan its enrolment to meet manpower needs? Perhaps the most promising one is the cost-benefit analysis of education. This is essentially an economist's approach to the determination of manpower supplies and demands. To understand this fully, we need to know how economists analyze occupational choice. Economists place particular emphasis on the effect earnings have on people's occupational choices. It is true, of course, that in many cases non-pecuniary factors are important in determining career decisions; certain people because of temperament and disposition will be strongly attracted to certain types of work (for example, art, painting, music, writing). Such people are not likely to be affected by small changes in earnings. There are, however, large numbers of persons who have no particular commitment to any occupation, and these people will be responsive to economic incentives. For them choosing a career is an important decision. Although they do not generally make this decision in a systematic manner, they do appraise the costs and benefits of an additional period of education and training. Additional costs are the foregone income plus the direct costs (tuition fees, books, etc.) while additional earnings anticipated over the entire worklife constitute the pecuniary benefits. Such a perspective only takes into account the returns which accrue to the individual. There may be other benefits (externalities in the economist's jargon) which accrue to society as a whole.[5]

How can we measure returns of higher education to the individual and to the society? For this purpose, it is necessary to calculate rates of return. Cross-section earnings data on those who have undergone higher education is needed. An age-earnings profile is then constructed and compared with that of individuals who have not been to a university. Some of the differences between the two age-earnings profiles is then attributed to the effect of education. The additional monetary benefits can be discounted to a point at which the decision to undertake further education is made to obtain the net present value of university education or more frequently, rates of return are computed.[6]

Rates of return can be calculated for the individual and for the society depending on whether individual costs or societal costs are included. To be of any value to enrolment planning, rates of return will need to be calculated for individual programmes or courses. Of course, there are serious problems involved in computing educational rates of return. For one thing, earnings may not reflect productivity and for another, not all the differences in earnings may be attributed to education — some of it may be due to differences in abilities, social background, family connections, etc.[7]

Despite its weaknesses, the rate of return approach to educational planning is a useful one especially if the rates are computed on a systematic basis periodically. The rate of return is a good economic indicator of the optimum number of persons in an occupation as it takes into account lifetime earnings and the discount factor. An occupational shortage will show up in the persistently higher rate of return. Thus, for example, if the rate of return to engineers is consistently higher than other professions, it may be reasonable to infer that a shortage of engineers exists.[8]

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[5] This ranks as perhaps one of the most important reasons why most states are willing to subsidize the production of university manpower

[6] The rate of return is that which equates the net earnings stream — i.e. benefits minus costs — to zero. For an excellent account of how rates of return are computed, see Mark Blaug, *An Introduction to the Economics of Education*, Penguin, 1972

[7] For an omnibus of objections to the rate of return approach to educational planning, see Mark Blaug, The Rate of Return on Investment in Education in Great Britain', *The Manchester School*, September 1965

Unfortunately, the type of data needed for computing rates of return to higher education is generally not available in Southeast Asia. Available studies suggest that the private returns to university education is over 10 per cent.[9] The social returns, however, are generally much smaller because most of the recurrent costs are borne by the state.

It has been noted that the rate of return approach can only indicate the direction of desirable change and not the magnitude. For planning purposes, it is obviously vital to know with some accuracy the additional number and types of graduates required in a given time period. This may be true but it does not vitiate the importance of rates of return as a guideline for expanding or contracting enrolment at the university level. Furthermore, if one considers the considerable possibilities of substitution on the job among various types of degree-holders, the need to know the precise number and type of graduates required in each year becomes less urgent;[10] put differently, because of specific needs of firms and the variety of accommodative mechanisms available to them, it is probably impossible for universities to train manpower to fit the precise needs of industry. The major problem is rather one of getting adequately reliable data. Universities should pay more attention to this type of data-gathering which is needed for a comprehensive appraisal of the cost-effectiveness of higher education.

There are, however, other economic indicators which can be used to assess the demand for university manpower. One of them is to compute ratios on the number of persons who are thinking of entering a profession as a percentage of the total supply in various occupations. Occupations with higher ratios are presumably those which are more attractive to young persons. If we further assume that private individuals make their decisions rationally and that private decisions are generally also consonant with the goal of optimizing public benefits, the indicator is a useful one. But here again the problem is one of obtaining reliable, current information.

Yet another indicator would be changes in relative salaries. Shortage may be then defined as an increase in salaries at the rate faster than that which occur in the recent past.[11] Thus, for example, if salaries are rising annually at 20 per cent for Engineering and Accountancy graduates and only 10 per cent for Science and Arts graduates, we may infer that engineers and accountants are in relatively short supply and take steps to correct them by expanding enrolment in these programmes. This type of information is easy to obtain, but it is surprising to note that few institutions of higher learning have tracer studies of the employment experiences of their graduates. Without such surveys, policymakers do not have a detailed picture of the absorption of graduates into the national economy. These surveys could indicate areas for which enrolment adjustments are needed. Moreover, year-to-year enrolment decisions of universities tend to be of a marginal nature, and information on earnings and the average period of waiting for first employment can be particularly helpful to university administrators.

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[8] Note that this is quite a different definition of shortages from that used in the manpower requirements approach in which a shortfall is defined as a difference between requirements and anticipated supply; the latter definition does not consider costs involved in producing one more trained worker.

[9] See David H. Clark and Pang Eng Fong, "Return to Schooling and Training in Singapore", *Malayan Economic Review*, Vol. XV, No. 2 (October 1970), and Mark Blaug, *The Rate of Return to Investment in Education in Thailand*, a report to the National Planning Committee on Third Educational Development Plan, Bangkok: National Education Council, 1971.

[10] One should add that this is the justification used by many people to support the education of generalists (i.e. Liberal Arts, Humanities, Pure Science graduates) who have the capacity and the flexibility to be trained for a wide variety of jobs. Even among graduates in Engineering, Architecture, Law and Accountancy, there is a fair amount of occupational mobility, much of it in pursuit of higher monetary returns but *not* necessarily inconsistent with national development in a market economy.

[11] This is a definition used by Blank and Stigler in their classic study on the engineering profession, see D.M. Blank and G.J. Stigler, *The Demand and Supply of Scientific Personnel*, National Bureau of Economic Research, Washington, 1954, p. 24.

THE OBJECTIVES AND RESPONSES OF THE UNIVERSITY SYSTEM IN SINGAPORE

The University of Singapore, to cite one example, has been monitoring the employment experiences of its graduates for the last five years. The surveys have provided current data on the employment experiences of new graduates and suggest that university enrolment patterns have been changing in line with the manpower needs of the Republic.[12]

Nanyang University in Singapore has also conducted graduate employment surveys. They show that most Nanyang graduates have had little difficulty in obtaining employment, and that Commerce graduates were able to find higher paid jobs than graduates who specialized in Chinese Language and Literature.[13]

Like other universities, the University of Singapore and Nanyang University have a multiplicity of social, economic, and political objectives, none of them stated in measurable terms which make it difficult to assess the extent to which they are fulfilled.[14] One important aim is the production of the requisite manpower needed to meet the demands of a society which aspires to be the brain-centre of the region. Particular emphasis is therefore given to the production of graduates in the Engineering, Business Administration, Accountancy, Medical, Dentistry, Architecture faculties and schools. Another objective is the inculation and transmission of national values. This socialization function is as important as the manpower production function as it is essential that university graduates identify themselves with the goals and values of a compact, multi-racial society. To accomplish this objective, the curricula and programmes have been modified and generally made less specialized in the first three years. For example, science students in the University of Singapore are required to take an arts subject to expose them to other disciplines while social science and arts students have to take a course in general science to help them understand a technological society better.[15] Universities in Singapore are also encouraged to engage in research and participate in public service and community activities, and as Professor Lim has pointed out the University of Singapore (and also Nanyang University) has been doing a great deal in both these areas.

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[12] For a useful summary of the pragmatic and flexible response of the University of Singapore to changing manpower demands, see Lim Chong Yah, "Mass Versus Selective Higher Education in Southeast Asia — The Responses of the University of Singapore", paper presented at RIHED Workshop, Chiang Mai, November 29 — December 2, 1973.

[13] For details, see Ong Teck Hong and Yang Chung-Hou, *An Analysis of the Employment Experiences of 1971-72 and 1972-73 Nanyang University Graduates*, Singapore: Nanyang University, May 1974.

[14] We have left out of our discussion the other institutions of higher learning in Singapore, namely, Singapore Polytechnic, Ngee Ann Technical College, Institute of Education and Singapore Technical Institute. All these institutions place major emphasis on the production of technical and professional manpower to meet the industrializing needs of the city-state.

[15] Again for details, see Lim Chong Yah, *op. cit.*

In recent years, the Singapore economy has undergone a structural transformation. Today the manufacturing sector absorbs some 25 per cent of the total workforce compared with about 15 per cent in the early sixties. The trend towards increased sophistication of industries and the emphasis on skill-intensive technology has led to a rapid expansion in the demand for professional and technical workers. Skill shortages have appeared and the government has had to relax its immigration policy. To meet the manpower requirements of an increasingly sophisticated manufacturing and service economy, the universities have adapted their enrolment pattern accordingly: professional education (Engineering, Accountancy, Law, Business Administration, Architecture) have been expanded rapidly while enrolment in the Arts and Social Sciences has grown at a slower pace. Enrolment planning at the University of Singapore is coordinated with the development policies of the country, which are made known to university authorities. Careful attention is also paid to the cost-effectiveness of various university programmes.

CONCLUSION

This paper has argued for a more economic perspective of higher education. Higher education is an expensive investment and it is important to know how efficiently high-level manpower is produced. We have also argued that a technological or deterministic approach to the projection of manpower may be misleading and that more attention should be paid to market signals in forecasting the demand for college-educated manpower. To this end, much more can be done to improve the data base upon which universities plan their manpower production. Further, we have stressed that too rigid a conception of the university's role in preparing graduates for occupations maybe unhealthy because of the tremendous capacity on the part of a market economy to adapt the characteristics of workers to its production needs. While it is important to teach market-relevant skills, it is also important that a capacity to respond flexibly to social and technological changes be developed in graduates. Finally, it is vital that universities collect more accurate information on the demand for their graduates and on their post-graduation behaviour in the labour market. Without such information, universities may not be able to respond efficiently to the changing manpower needs of the society upon which they rely so heavily for their financing.

PART III

THE EMPLOYMENT OF UNIVERSITY GRADUATES IN SOUTHEAST ASIA

THE EMPLOYMENT OF UNIVERSITY GRADUATES IN MALAYSIA

Mohd. Ghazali bin Haji Abdul Rahman

I. INTRODUCTION

Malaysia, once known as Malaya, obtained her independence from the British on August 31st, 1957. Since then she has grown into Malaysia (1963) with the joining of Sarawak and Sabah, two former British Protectorates on the Island of Borneo. With the merger of Sarawak and Sabah programmes in respect to national integration and unity were instituted. In the area of education, the policies formulated to achieve this end include:-

1. Closing the gap in educational opportunities among regions and races; and

2. The eventual integration of the educational system of Sabah and Sarawak with the national system.

Prior to independence, the educational objectives were designed to segregate the races rather than unite them. Vernacular schools were encouraged and the various races were allowed to advance to a level which would equip them for only 'second rung' jobs.

The system was perpetuated with the training of teachers equipped only to reinforce the system. The reasons were obvious. It enabled the colonial masters to maintain their strangle-hold over the subjects. Only a selected few were encouraged to pursue education through British schools either in the country or in Britain.

With the attainment of independence a national education policy was formulated with the view to correct the mistakes of the past and to promote a single system of education. This was a logical solution if Malaysia was to face the challenge of the modern world.

Malaysia embarked on a series of Plans known as the First Malaya Plan, the Second Malaya Plan (1961-65) and, following the formation of Malaysia in 1963, the First Malaysia Plan, 1966-70. She is now in the midst of the Second Malaysia Plan.[1] Last year, this plan[2] came under review and the results achieved thus far have left the government and the populace quite happy.

The first three years of the Plan has been significant in identifying some of the problems and issues, and initiating policies, programmes, and projects to restructure the education and training system.

A major advance has been the detailed assessment of the availability of providing educational opportunities to the low income groups and to the disadvantaged regions of the country, as well as the identification of the specific problems involved in extending educational opportunities to the groups and regions. A second area of significant attention has been the introduction and expansion of educational programmes to enable a greater number of Malays and other indigenous people to meet the requirements of racially balanced employment and a visible Malay commercial and industrial community. The third area has been the expansion of facilities and opportunities for education in science, mathematics and technology-oriented disciplines. There has been expansion of industrial training facilities in the fields of critical manpower shortage, and the implementation of measures to bring about better coordination and effectiveness of the training system.

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[1] Second Malaysia Plan 1971-75.

[2] Mid-term Review of the Second Malaysia Plan 1971-75.

II. THE NATIONAL EDUCATION POLICY

In the First Malaysia Plan, true to its policy of uplifting the educational standards of the people, the education was concerned more with the content, the basic problems of eradication of illiteracy, and giving each citizen equal opportunities for all levels of education. Its objectives included:-

1. The extension of basic education to include not only the primary cycle but also three years of lower secondary education;

2. The reorganization of the pattern of secondary education with the introduction of comprehensive and post-comprehensive education; and

3. The shift towards a better balance between general education on the one hand, and vocational, technical, and science education on the other.

With the Second Malaysia Plan, the major objectives of education and training in the country shifted to more than the basic. They were geared specifically towards national integration and advancement:-

1. Consolidation of the system to promote national integration and unity;

2. Orientation and expansion of education and training programmes towards meeting the manpower needs of the country;

3. Improvement of the quality of education for the building of a progressive society oriented towards modern science and technology; and

4. Improvement of the research, planning and implementation capability to meet the above objectives.

These are long-term objectives. Considerable time-lags are involved before educational reforms and investments in education and training produce the desired results.

Tables I and II illustrate the enrolment pattern in Malaysian schools and institutes of higher education which include polytechnic institutes and universities.

III. THE TASK OF UNIVERSITIES IN THE LIGHT OF THE NATIONAL EDUCATION POLICY

As outlined in Section II, the first objective of the National Education Policy was to promote national unity through education. One of the first things the government did was to standardize the various systems of education found in this country into one uniform national system. Coupled to this, the question of the National Language, which is Malay, is paramount.

The language question is a far reaching instructional reform that is aimed at the revival of learning among the bulk of the hitherto educationally disadvantaged rural majority of our people. As of 1970, the medium of instruction to be used was the Malay language. In this way, the use of English gradually becomes relegated to second place and by 1982 all school leavers would have been educated solely in the national language. A uniform system of education and a uniform language would, it is hoped, promote better integration of the various races and national unity.

It was also mentioned that in the past opportunities for education differed with the races. The Chinese who mostly cluster around the urban centres would naturally benefit from a richer educational environment. The Malays on the other hand who are traditionally rural dwellers tended to have less of these amenities. Schools were smaller, teachers less qualified, facilities almost nil. Naturally, when the two groups are merged together in an institution of higher learning, usually in or near urban centres, the differences arising out of their earlier educational backgrounds surface with astonishing clarity.

What are universities expected to do in the light of these factors? In the first place, a university is part and parcel of the Ministry of Education. Hence all policies set up by the Ministry has to be strictly adhered to by universities, although the university is quite autonomous in terms of deciding the academic content of its various courses. At present all universities except for the National University of Malaysia still use the English language extensively as a medium of instruction. However, from 1983 they must be prepared for the first crop of school leavers who have been educated in the national language.

Secondly, the criteria of admission has to be revised to include factors other than mere academic excellence, because if admission is determined by only this factor then obviously only the town dwellers would be able to enjoy university education, whereas the rest would be deprived of it. If the nation is serious in its aim to correct economic imbalances between urban / rural dwellers and between races, then universities will have to change its admission policies wherever it can without lowering academic standards. What the National University, for example, has done is to admit school leavers straight into the university without the prerequisite Higher School Certificate. These students are put through a ten month matriculation course geared specifically towards the fields of study they intend to pursue in the degree course proper. Candidates who survive this course will then be admitted into the first year proper. This is indeed an excellent way of correcting imbalances in earlier educational experiences. It is hoped that with better educational opportunities at a later stage the economically deprived will be able to compete on an equal footing with their better endowed counterparts.

While it is possible for a university to adopt the above mentioned measures, there are certain serious questions it has to answer. What is its idea of university education, its philosophy? What is the kind of graduate it feels it has to mould? How does it ensure the maintenance of academic standards if academic excellence as an entrance criteria becomes secondary to other factors? These are some of the questions a university will have to solve, in order to maintain its integrity while at the same time join in with the government in its efforts to promote unity and to eradicate poverty.

TABLE I

DEVELOPMENTS IN THE EDUCATION SYSTEM, 1970–75

	Enrolments			Increase (%)	
	1970	1973	1975 (Target)	1970-73	1970-75
Primary:					
Peninsular Malaysia	1,421,469	1,531,493	1,605,000	7.7	12.9
Sabah	110,607	120,100	138,000	8.6	24.8
Sarawak	144,007	162,289	165,330	12.7	14.8
Total	*1,676,083*	*1,813,882*	*1,908,330*	8.2	13.9
(% of all levels)	75.4	71.9	69.0		
Lower secondary:					
Peninsular Malaysia	378,535	469,116	537,000	23.9	41.9
Sabah	26,922	33,443	41.000	24.2	52.3
Sarawak	17,041	26,186	46,507	53.7	172.9
Total	*422,498*	*528,745*	*624.507*	25.1	47.8
(% of all levels)	19.0	21.0	22.6		
Upper secondary:					
Arts and Science					
Peninsular Malaysia	84,925	115,289	140,000	35.8	64.9
Sabah	3,975	7,141	10,000	79.6	151.6
Sarawak	4,384	6,032	6,953	37.6	58.6
Vocational and technical	4,981	9,066	24,540	82.0	392.7
Total	*98,265*	*137,528*	*181,493*	40.0	84.7
(% of all levels)	4.4	5.4	6.5		
Post secondary (H.S.C.):					
Peninsular Malaysia	10,619	13,728	16,000	29.3	50.7
Sabah	272	338	500	24.3	83.8
Sarawak	641	1,031	1,330	60.8	107.5
Total	*11,532*	*15,097*	*17,830*	30.9	54.6
(% of all levels)	0.5	0.6	0.6		
Treacher training:					
Primary	1,435	2,044	3,040	42.4	111.8
Secondary	1,123	2,030	2,400	80.8	113.7
Total	*2,558*	*4,074*	*5,440*	59.3	112.7
(% of all levels)	0.1	0.2	0.2		
College level:	*3,830*	*7,531*	*10,273*	96.6	168.2
(% of all levels)	0.2	0.3	0.4		
University level:	*9,494*	*14,661*	*18,757*	54.4	97.6
(% of all levels)	0.4	0.6	0.7		
Grand total	2,224,260	2,521,518	2,766,630	13.4	24.4

From "Mid-term Review of the Second Malaysian Plan 1971–1975" (1973)

TABLE II

ENROLMENTS[1] IN TERTIARY EDUCATION, 1970-75

	1970	1973	1975	Increase (%)	
			(Target)	1971-73	1971-75
College level –					
Ungku Omar Polytechnic	493	915	1,273	85.6	158.2
Institute of Technology, MARA	2,142	4,434	6,000	107.0	180.1
Tunku Abdul Rahman College	1,195	2,182	3,000	82.6	151.0
University level –					
University of Malaya	7,777	8,519	8,600	9.5	10.6
University of Science	271	1,548	2,685	471.2	890.7
National University	169	1,489	2,647	781.1	1,466.2
University of Agriculture	585	1,589	2,375	171.6	305.9
National Institute of Technology	692	1,516	2,450	119.1	254.0
Total	13,324	22,192	29,030	66.6	117.9

[1] Excludes post-graduate and off-campus enrolments.

From 'Mid-term Review of The Second Malaysian Plan 1971 – 1975' (1973)

The second objective in the National Education Policy which was mentioned in Section II was education for manpower needs. Obviously if the objectives of the New Economic Policy are to be realized, then a large number of skilled manpower is needed and fast. Gone are the days when universities can wallow in the pure arts or sciences for their own sakes and yet be certain that the graduates will face no problems in acquiring handsome jobs with commensurate salaries. 'Historically, the labour market has not been a continuing source of concern for higher education. Except in times of depression, it has absorbed all the college and university graduates. It has been taken for granted as a generally adequate outlet for talent highly trained academically. This has now changed, and has probably changed for the foreseeable future; the labour market is now a serious concern for higher education and will remain so'.[3]

These are the opening sentences of one of the Carnegie Commission's reports.

With the rapid pace of development in the country comes also the corresponding demand for more professionals in the job market. Tun Abdul Razak, the Malaysian Prime Minister, once alluded to this when he addressed the International Conference of Universities in Kuala Lumpur on August 24, 1970. He said that:

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[3] J. Embling, 'A Fresh Look at Higher Education', *European Implications of the Carnegie Commission Reports*, 1974.

> . . . . . . it is essential for any university to meet adequately the national needs and human aspiration of the country in which the university is situated. In a developing country there is always an urgent need for trained manpower and, therefore, universities must produce graduates who are possessed of relevant skills able to participate and play their part in the technological and economic development of the country.

Tun Abdul Razak further stressed that it was not enough for universities to act as educational processing agencies on behalf of the professions. They should also be an important chain in the building of national character and the fostering of national unity.

How must universities respond to this changing situation? How can a university which has been traditionally academic change to incorporate discipline traditionally held to be 'commercial' and hence 'inferior'? There is also the other extreme, particularly with institutions or universities recently established, where an institution turns completely 'applied' and neglects the fundamental pure disciplines. Each university will have to find that happy balance where both the academic and the professional components in university education can successfully interfused so that the end product, the graduate, will emerge a potentially active participant in the country's economic life and yet is able to retain his humanity.

Finally there is also the objective of the National Education Policy to gear educational training towards science and technology. Tied in with this objective is the national objective of eradicating poverty through the creation of more employment opportunities for all. To achieve this the economy of the country will have to be expanded through 'a fuller and more efficient utilization of the country's human, natural, and capital resources'. How can this be done? More industries will have to be set up, raw materials produced locally will have to be locally processed instead of being exported, the private sector will have to be considerably expanded. Hence the need for training in science and technology.

What role is expected of a university in this sort of environment? It is my contention that if we are to step in tune with this policy, which in the end we must, we must come down from the rarified atmosphere of academic, because our business is to produce graduates who, by training, are fully equipped to fit in with the new conditions. At the same time we must tread with care, for there is the lurking danger that we may lean too far that way, so that in the end what we have is a mere robot who fits in well only as a cog in the wheel of production and progress.

IV. MANPOWER NEEDS

The labour force[4] of Malaysia was estimated to be 3,597,000[5] in 1970. Employment[6] in the 15-64 age gap was estimated at 3,328,000. The agricultural sector accounted for about 53 per cent of employment, with industries and services contributing 19 per cent and 28 per cent respectively.

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[4] The labour force is defined as those persons within the ages 15-64 who are either employed or unemployed.

[5] The Census figures on labour force have been adjusted in the light of information from labour force surveys.

[6] The employed are defined as those persons who work for pay, profit or family gain at any time during the reference week. Thus employed include the underemployed and those who work less than full-time.

In order to help maintain her employment objectives, a major policy was introduced which is an accelerated pace of overall economic activity. Others include land development, employment growth, education and training, labour market policies and programmes, and youth employment programmes.

The employment objective of the Second Malaysian Plan was to create 596,000 new jobs so as to absorb the greater part of the 645,000 new entrants in the labour force during the period. The industry and the services sector were expected to provide most of the jobs, while the agricultural sector, with a share of 25 per cent of the new job creation (mainly from new land development), was expected to provide largely for further utilization of the labour force in the rural areas. (Table III).

As shown in Table IV 348,000 jobs were created in the first three years of the Second Malaysian Plan, which represented about 58 per cent of the original target of 596,000 for the five-year period.

Education and training will no doubt, continue to be a major avenue to provide the skilled manpower for the nation's development. During the period 1971-73, education at all levels expanded significantly, with emphasis given to teacher training and tertiary educational facilities in the fields of science and technology.

There are five universities in Malaysia, four of which were set up within the last five years. One of the objectives of the setting up the five universities among many others, is to meet the trained manpower needs, particularly in the field of education, viz[7] graduate teachers. (Tables V, VI, VII, VIII, IX, X and XI).

While substantial expansions in education and training programme have taken place, sizeable manpower shortages continue to exist in engineering, agricultural research and extension, science and technical education, medicine, health and management. (Tables XII, XIII and XIV).

V. THE UNIVERSITIES IN RELATION TO THE PROBLEM OF MEETING THE MANPOWER NEEDS

There are five universities in Malaysia, three of which are patterned on the traditional model. The others, the University of Agriculture and the National Institute of Technology, were agricultural and technical colleges respectively. They are now upgraded to university status, though diploma courses are still being conducted.

The University of Malaya is the oldest in the country, followed by the University of Science Malaysia, and the National University of Malaysia. These universities offer the traditional types of courses viz. in the humanities, economic, the social sciences, the natural sciences, engineering, medicine, and dentistry. The other two universities, as their names reveal, will produce agriculturists, veterinarians, engineers, architects, quantity surveyors, etc.

With the rapid expansion in the field of basic education, larger numbers are going in for higher education. The universities have to provide space for them. A big majority of the undergraduates will follow the traditional courses, viz. the humanities and the social sciences. This is due to the nature of the education system and the facilities available in the schools. With the perpetuation of the system, prospects for graduates in the humanities to obtain full employment may be

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[7] A graduate teacher is one who possesses a university degree with/without a diploma in teaching.

TABLE III

Revised Population, Labour Force and Employment Estimates, 1970-75
(000)

	Plan original			Revised		
	1970	1975	Average annual growth (%)	1970	1975	Average annual growth (%)
POPULATION:						
Peninsular Malaysia	9,300	10,600	2.7	9,181	10,490	2.7
Sabah and Sarawak	1,600	1,900	3.5	1,629	1,865	2.7
Malaysia	10,900	12,500	2.8	10,810	12,355	2.7
WORKING AGE POPULATION (15-64):						
Peninsular Malaysia	5,010	5,849	3.1	4,800	5,720	3.6
Sabah and Sarawak	870	1,017	3.2	820	957	3.1
Malaysia	5,880	6,866	3.1	5,620	6,677	3.5
LABOUR FORCE (15-64):						
Peninsular Malaysia	3,150	3,690	3.2	3,026	3,580	3.4
Sabah and Sarawak	618	723	3.2	571	642	2.4
Malaysia	3,768	4,413	3.2	3,597	4,222	3.3
EMPLOYMENT (15-64):						
Peninsular Malaysia	2,900	3,395	3.2	2,783	3,316	3.6
Sabah and Sarawak	593	694	3.2	545	612	2.3
Malaysia	3,493	4,089	3.2	3,328	3,928	3.4
UNEMPLOYMENT:						
Peninsular Malaysia	250	295		243	264	
(% of labour force)	8.0	8.0		8.0	7.4	
Sabah and Sarawak	25	29		26	30	
(% of labour force)	4.0	4.0		4.6	4.7	
Malaysia	275	324		269	294	
(% of labour force)	7.3	7.3		7.5	7.0	

From 'Mid-term Review of The Second Malaysia Plan 1971 – 1975' (1973)

TABLE IV

Revised Employment Growth, by Sectors, 1971–75

	Revised sectoral employment, 1971-75							Estimated employment growth, 1971-73			Projected employment growth, 1974-75		
	Estimated employment 1970 (000)	Share of total (%)	Target, 1975 (000)	Share of total (%)	Increase, 1971-75 (000)	Average annual growth of employment (%)	Average annual growth of output (%)	Increase, 1971-73 (000)	Share in job creation (%)	Average annual growth (%)	Increase, 1974-75 (000)	Share in job creation (%)	Average annual growth (%)
Agriculture, forestry and fisheries	1,749	52.6	1,916	48.8	167	1.8	8.3	96	27.6	1.8	71	28.2	1.9
Mining and quarrying	87	2.6	92	2.3	5	1.1	10.6	2	0.6	0.8	3	1.2	1.7
Manufacturing	318	9.6	479	12.2	161	8.5	14.0	100	28.7	9.5	61	24.2	7.0
Construction	91	2.7	124	3.2	33	6.4	7.2	18	5.2	6.2	15	5.9	6.7
Electricity, water and sanitary services	23	0.7	32	0.8	9	6.8	10.9	5	1.4	6.8	4	1.6	6.9
Transport, storage and communications	129	3.9	150	3.8	21	3.1	5.2	13	3.7	3.3	8	3.2	2.8
Wholesale and retail trade	309	9.3	390	9.9	81	4.8	4.7	46	13.2	4.7	35	13.9	4.8
Banking, insurance and real estate	17	0.5	27	0.7	10	9.7	9.5	6	1.7	10.6	4	1.6	8.3
Public administration and defence	284	8.5	324	8.3	40	2.7	3.4	26	7.5	3.0	14	5.5	2.2
Services	321	9.6	394	10.0	73	4.2	4.0	36	10.4	3.6	37	14.7	5.1
Total	3,328	100.0	3,928	100.0	600	3.4	7.8	348	100.0	3.4	252	100.0	3.4

From 'Mid-term Review of The Second Malaysia Plan 1971 – 1975' (1973)

TABLE V

Projected Graduate Teacher Requiremens for Science and Mathematics, 1974 – 1980

Year	Graduate Teacher Requirements (Commulative) by Medium of Instruction								
	General Science			Mathematics			Pure Science *		
	Malay Med.	English Med.	Total	Malay Med.	English Med.	Total	Malay Med.	English Med.	Total
1974	204	284	488	367	772	1139	325	1039	1364
1975	228	281	509	452	809	1261	447	1133	1580
1976	258	291	549	546	876	1422	575	1242	1817
1977	299	300	599	664	943	1607	730	1361	2091
1978	331	302	633	824	1004	1228	985	1485	2460
1979	487	148	635	1349	604	1953	1696	1058	2744
1980	595	–	595	1876	173	2049	2515	517	3632

Notes :
(1) The teacher Projection is based on projected envolments at Upper and Post Secondary Levels.
(2) Class Size = 35 (Upper Secondary), 30 (Post Secondary)
(3) Teachers Required = 1.4 x (Enrolment) ÷ (Class Size) for Upper Secondary
= 2.0 x (Enrolment) ÷ (Class Size) for Post Secondary
(4) Teacher Requirements by Subjects are based on the % time allocated in the Curriculum
* Teachers Required to teach Physics, Chemistry and Biology separately = 1/3 of Teachers for Pure Science.

TABLE VI

Excess/Shortage of Graduate Teachers as at January, 1974

Subjected	Teacher Stock as at 31.3.74			Excess (+)/Shortage (–) as at January, 1974		
	Malay Med.	English Med.	Total	Malay Med.	English Med.	Total
General Science	64	416	480	–140	+ 132	–8
Mathematics	49	294	343	–318	–478	–796
Physics	22	124	146	–86	–222	–308
Chemistry	25	142	167	–83	–204	–287
Biology	16	105	121	–93	–242	–335

TABLE VII

Projected Graduate Teacher Demand for General Science in the Malay and English Media, 1974 – 1980

Year (1)	Teacher Stock (2)	Attrition 3% of Col. (2) (3)	Teachers Available Col. (2) – Col. (3) (4)	Teachers Required (5)	Excess (+) or Shortage (–) Col. (4) – Col. (5) (6)	Output of Teachers (7)	Nett Excess (+) or Shortage (–) (8)
1974	480*	–	480	488	–8		
1975	480	14	466	509	–43		
1976	466	14	452	549	–97		
1977	452	14	438	599	–161		
1978	438	13	425	633	–208		
1979	425	13	412	635	–223		
1980	412	12	400	596	–196		

* Actual as at 31.3.1973

TABLE VIII

Projected Graduate Teacher Demand for Mathematic in the Malay and English Media, 1974 – 1980

Year (1)	Teacher Stock (2)	Attrition 3% of Col. (2) (3)	Teachers Available Col. (2) – Col. (3) (4)	Teachers Required (5)	Excess (+) or Shortage (–) Col. (4) – Col. (5) (6)	Output of Teachers (7)	Nett Excess (+) or Shortage (–) (8)
1974	343*	–	343	1139	–796		
1975	343	10	333	1261	–928		
1976	333	10	323	1422	–1099		
1977	323	10	313	1607	–1294		
1978	313	99	304	1828	–1524		
1979	304	9	295	1953	–1658		
1980	295	9	286	2049	–1763		

* Actual as at 31.3.73

TABLE IX

Projected Graduate Teacher Demand for Physics in the Malay and English Media, 1974 – 1980

Year (1)	Teacher Stock (2)	Attrition 3% of Col. (2) (3)	Teachers Available Col. (2) – Col. (3) (4)	Teachers Required (5)	Excess (+) or Shortage (–) Col (4) – Col. (5) (6)	Output of Teachers (7)	Nett Excess (+) or Shortage (–) (8)
1974	146*	–	146	454	–308		
1975	146	4	142	526	–384		
1976	142	4	138	605	–467		
1977	138	4	134	697	–563		
1978	134	4	130	822	–692		
1979	130	4	128	914	–788		
1980	126	4	122	1010	–888		

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* Actual as at 31.3.73.

TABLE X

Projected Graduate Teacher Demand for Chemistry in the Malay and English Media, 1974 – 1980

Year (1)	Teacher Stock (2)	Attrition 3% of Col. (2) (3)	Teachers Available Col. (2) – Col. (3) (4)	Teachers Required (5)	Excess (+) or Shortage (–) Col. (4) – Col. (5) (6)	Output of Teachers (7)	Nett Excess (+) or Shortage (+) (8)
1974	167*	–	167	454	–287		
1975	167	5	162	526	–364		
1976	162	5	157	605	–448		
1977	157	5	152	697	–545		
1978	152	5	147	822	–675		
1979	147	4	143	914	–771		
1980	143	4	139	1010	–871		

* Actual as at 31.3.73.

TABLE XI

Projected Graduate Teacher Demand For Biology In The Malay And English Media, 1974 – 1980

Year (1)	Teacher Stock (2)	Attrition 3% of Col. (2) (3)	Teachers Available Col. (2) – Col. (3) (4)	Teachers Required (5)	Excess (+) or Shortage (–) Col. (4) – Col. (5) (6)	Output of Teachers (7)	Nett Excess (+) or Shortage (8)
1974	121*	–	121	456	–335		
1975	121	4	117	528	–411		
1976	117	4	113	607	–494		
1977	113	3	110	697	–587		
1978	110	3	107	824	–717		
1979	107	3	104	916	–812		
1980	104	3	101	1012	–911		

* Actual as at 31.3.73

TABLE XII

Distribution of *Manpower by Major Occupations and Industry, Private Sector, Peninsular Malaysia, 1973

Occupation	Manufacturing	Construction	Mining	Estates	Transport	Wholesale	Retail	Bank & Financial Service	Insurance	Professional Services	Hotels	Commercial Schools	Total
I. Professional, Technical & Related Workers	5,109	440	778	499	12	450	108	140	180	6,133	106	405	14,360
Physical Scientists	157	–	25	–	–	–	–	–	–	–	–	–	182
Engineers	721	35	171	4	2	64	1	–	–	237	3	–	1,238
Architects & Town Planners	–	–	–	–	–	–	–	–	–	218	–	–	218
Surveyors	–	15	34	1	–	–	–	–	–	69	–	–	119
Life Scientists	11	–	–	12	–	25	–	–	–	–	–	–	48
Engineering Technicians	949	39	220	45	1	51	19	–	1	97	2	–	1,424
Draughtsmen	319	35	31	4	–	24	–	1	–	1,334	–	–	1,748
Other Technicians	755	282	137	96	–	2	–	–	–	431	–	–	1,703
Accountants & Auditors	416	21	47	3	7	128	26	113	18	413	11	1	1,204
Economists	–	–	–	–	–	24	–	13	5	–	–	–	42
Medical Doctors	–	–	–	11	–	–	–	–	–	632	–	–	643
Dentists	–	–	–	–	–	–	–	–	–	112	–	–	112
Medical Assistants	–	–	–	273	–	–	–	–	–	–	–	–	273
Other Medical & Health Workers	–	–	–	19	–	–	–	–	–	1,979	–	–	1,998
Teachers – High Education	–	–	–	–	–	–	–	–	–	–	–	31	31
Teachers – Secondary Education	–	–	–	–	–	–	–	–	–	–	–	262	262
Teachers – Pre-primary	–	–	–	12	–	–	–	–	–	–	–	3	15
Advocates & Solicitors	–	–	–	–	–	–	–	–	–	534	–	–	534
Other Professional, Technical & Related Workers	1,781	13	113	19	2	132	62	13	156	77	90	108	2,566
II. Managers	5,847	646	1,480	42	292	1,158	145	1,099	306	79	25	5	11,124

* The Figures include diploma holder

TABLE XIII

*Manpower Requirements by Occupation and Industry, Private Sector, Peninsular Malaysia, 1975.

Occupation	Manufacturing	Construction	Mining	Estates	Transport	Wholesale	Retail	Bank & Financial Services	Insurance	Professional Services	Hotels	Commercial Schools	Total
I. Professional, Technical & Related Workers	7,132	545	923	579	14	495	124	169	228	6,509	116	454	17,288
Physical Scientists	204	–	33	–	–	–	–	–	–	–	–	–	237
Engineers	992	44	210	4	2	70	1	–	4	251	3	–	1,581
Architects & Town Planners	–	–	–	–	–	–	–	–	–	231	–	–	231
Surveyors	–	18	41	1	–	–	–	–	–	73	–	–	133
Life Scientists	12	–	–	14	–	28	–	–	–	–	–	–	54
Engineering Technicians	1,445	49	263	52	1	56	22	–	1	103	2	–	1,994
Draughtsmen	484	43	37	4	–	26	–	1	–	1,416	–	–	2,011
Other Technicians	1,260	355	164	111	–	2	–	–	–	458	–	–	2,350
Accountants & Auditors	576	25	56	3	7	141	30	136	24	438	12	1	1,452
Economists	–	–	–	–	–	26	–	16	6	–	–	–	48
Medical Doctors	–	–	–	12	–	–	–	–	–	671	–	–	683
Dentists	–	–	–	–	–	–	–	–	–	119	–	–	119
Medical Assistants	–	–	–	315	–	–	–	–	–	66	–	–	381
Other Medical & Health Workers	–	–	–	23	–	–	–	–	–	2,106	–	–	2,129
Teachers – Higher Education	–	–	–	–	–	–	–	–	–	–	–	35	35
Teachers – Secondary Education	–	–	–	–	–	–	–	–	–	–	–	293	293
Teachers – Pre-Primary	–	–	–	14	–	–	–	–	–	–	–	3	17
Advocates & Solicitors	–	–	–	–	–	–	–	–	–	567	–	–	567
Other Professional, Technical & Related Workers	2,156	11	119	26	4	146	71	16	193	10	99	122	2,973
II. Managers	7,054	790	1,964	49	322	1,320	172	1,212	350	84	27	7	13,351

*The Figures include diploma holder

TABLE XIV

*Manpower Requirements by Major Occupations and Industry, Private Sector, Peninsular Malaysia, 1980

Occupation	Manufacturing	Construction	Mining	Estates	Transport	Wholesale	Retail	Bank & Financial Service	Insurance	Professional Services	Hotels	Commercial Schools	Total
I. Professional, Technical & Related Workers	13,008	754	1,230	787	16	594	160	241	326	7,355	131	559	25,161
Physical Scientists	363	–	49	–	–	–	–	–	–	–	–	–	412
Engineers	1,844	63	299	4	2	84	1	–	6	285	3	–	2,591
Architects & Town Planners	–	–	–	1	–	–	–	–	–	261	–	–	262
Surveyors	–	25	54	19	–	–	–	–	–	83	–	–	181
Life Scientists	20	–	–	71	–	33	–	–	–	–	–	–	124
Engineering Technicians	2,767	68	362	–	1	67	28	–	2	117	2	–	3,414
Draughtsmen	1,012	62	52	7	–	32	–	2	–	1,600	–	–	2,767
Other Technicians	2,249	496	225	149	–	3	–	195	–	517	–	–	3,834
Accountants & Auditors	1,074	34	74	4	9	169	36	–	35	495	14	1	1,947
Economists	–	–	–	–	–	32	–	22	9	–	–	–	63
Medical Doctors	–	–	–	17	–	–	–	–	–	758	–	–	775
Dentists	–	–	–	–	–	–	–	–	–	135	–	–	135
Medical Assistants	–	–	–	428	–	–	–	–	–	71	–	–	499
Other Medical & Health Workers	–	–	–	30	–	–	–	–	–	2,373	–	–	2,403
Teachers – Higher Education	–	–	–	–	–	–	–	–	–	–	–	43	43
Teachers – Secondary Education	–	–	–	–	–	–	–	–	–	–	–	362	362
Teachers – Pre-Primary	–	–	–	19	–	–	–	–	–	–	–	4	23
Advocates & Solicitors	–	–	–	–	–	–	–	–	–	640	–	–	640
Other Professional, Technical & Related Workers	3,679	6	115	38	4	174	93	22	274	20	112	149	4,686
II. Managers	9,972	1,032	2,157	67	404	1,702	239	1,477	428	98	31	6	17,613

* The Figures include diploma holder

slim. This has been experienced in countries where there was a very big expansion in higher education. The two countries in Europe that are most affected are Sweden and Italy and, in the humanities, France. These countries experienced a big expansion in higher education in 1960s which has not been matched by an increase in the number of jobs of the kind which graduates traditionally take, and the indications are that the mismatch will be even more severe for the next few years. In Sweden, 16 per cent of the 1970 graduates are still without jobs. The situation in India is similar. There is some initial indication that this problem will be faced by Malaysia if the traditional university system is perpetuated. Malaysia is extremely short of the professionals, viz. engineers, doctors, teachers, etc. (Tables XII, XIII, and XIV). So with the establishment of the newer universities, viz. the University of Science Malaysia, the National University of Malaysia, the Agriculture University, and the National Institute of Technology it is hoped the shortages can be filled. With the setting up of these newer universities, there are now two schools of medicine, two schools of engineering, a school of architecture, forestry, veterinary, agriculture, surveyor, etc.

VI. COMMENTS

The country is experiencing a shortage in the professional manpower. Is this a reflection of our educational system, or a shortage of facilities in the schools, viz. shortage of science teachers, physical facilities? If the shortcomings are due to lack of physical facilities, efforts have to be taken to remedy this immediately.

On the other hand, if the shortage of suitable candidates for the respective fields is due to the system, steps ought to be taken to offer broad-based secondary education, following upon this the university will have to alter its philosophy.

The problem faced is unique and complicated. On the one hand, the country is trying to close the gap in educational opportunities among regions and races, and aiming at the eventual equal participation by all races. The weak have got to be helped without jeopardizing the right of others.

Has the Malaysian environment created sufficient job opportunities for its university graduates? How does it control excess, if there is any? How has it been able to prevent the growth of the problem of the educated unemployed? Is there a need for universities to 'grow with the time' and shed off a layer or two of their academic cloak? And if they do, to what extend can they turn 'comprehensive' without losing their tradition and hence standards?

All the questions need not be answered but must be thought of seriously. It is true that a university should play its role in producing the required manpower needs of a country. Although this is one of the functions of a university, most educationalists would agree that university education should not solely be geared to this objective.

On the other hand a university should not be thought of as an ivory tower, quite completely removed and secluded from the social, political, and economic issues of the day. All of the revered thinkers of the past sought to organize theory and knowledge in ways which would advance society in preconceived directions. Philosophic scholarly activity, from its earliest days, was interwoven both openly and subtly with social goals.

If the only objective of a university is to produce the required manpower needs of a country university education should be compartmentalized into areas such as: technology, administration and economics, medicine and social work, teaching, and cultural work and information.

The Carnegie Commission[8] strongly opposed the concept of manpower planning approach to higher education.

'Manpower planning leads towards rigidities and towards controls, and we find it, by and large, both an ineffective and repugnant mechanism and probably also an unenforceable one as well'.

And again:-

'. . . . . . manpower-oriented educational models are more appropriate in countries with planned economics, where manpower objectives are designed to be consistent with other objectives of the plan, than in economics in which consumer choice is expected to be the major determinant of the composition of production of goods and services'.

Perhaps a manpower orientation to education is what the country needs.

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[8] J. Embling, 'A Fresh Look at Higher Education', *European Implications of the Carnegie Commission Reports*, 1974.

Primary School Enrolment
1965–1973 Actual as at 31st January
1974 – 1980 Projected

Appendix I

Year	Population 6+	Std. 1	Std. 2	Std. 3	Std. 4	Std. 5	Std. 6	Total Primary Enrolment
1965	255,673	234,322	218,872	218,484	198,846	184,968	161,817	1,217,369
1966	261,847	240,932	234,316	216,693	214,005	191,034	172,419	1,269,399
1967	267,654	248,244	239,496	230,414	210,800	207,032	179,604	1,315,590
1968	278,117	260,990	246,402	236,359	223,565	203,916	192,409	1,363,641
1969	279,064	259,377	256,969	241,714	228,399	214,347	188,339	1,389,145
1970	280,262	261,152	256,449	253,048	232,115	218,004	200,665	1,421,469
1971	283,730	268,518	258,989	250,249	247,680	224,701	207,561	1,457,698
1972	287,421	267,022	269,269	255,446	245,549	241,215	214,279	1,492,780
1973	291,831	275,257	262,204	264,907	252,151	241,754	235,220	1,531,493
1974	296,444	284,586	272,504	259,058	261,463	248,369	235,952	1,561,932
1975	301,473	289,414	281,740	269,507	255,949	257,803	242,657	1,597,070
1976	307,113	294,828	286,520	278,923	266,542	252,622	252,131	1,631,566
1977	313,622	301,077	291,880	283,655	276,134	263,344	247,316	1,663,406
1978	321,972	309,093	298,066	288,961	280,818	273,097	258,077	1,708,112
1979	331,734	318,465	306,002	295,085	286,071	278,010	268,181	1,751,814
1980	343,089	329,365	315,280	302,942	292,134	283,210	273,840	1,796,771

The 6+ population projection (1972-1980) is based on a paper entitled "Research Paper No. 4 Population Projections by Age, Race and Sex for West Malaysia, 1967 – 1997" by the Department of Statistics, Lineer interpolation is applied to obtain the 6+ population by single years.

From I Enrolment (From Form Remove and Direct Entry)
1965 – 1973 Actual As at 31st, January
1974 – 1980 Projected

Appendix II

Year	Form I Total Enrolment		
	Malay Medium	English Medium	Both Media
1965	35833	49092	84925
1966	36965	68232	105197
1967	40172	72426	112598
1968	35877	81457	117834
1969	33990	85585	119575
1970	37836	90871	128707
1971	48172	82846	131018
1972	55615	87994	143609
1973	68243	88107	156350
1974	77166	96309	173475
1975	92909	100314	193223
1976	187736	–	187736
1977	192972	–	192972
1978	193635	–	193635
1979	201330	–	201330
1980	211476	–	211476

Appendix III

Form I – Form III Enrolment
1965–1973 Actual as at 31st January
1974–1980 Projected

Year	Both Media		
	Form I	Form II	Form III
1965	84925	51271	52756
1966	105197	82710	50568
1967	112598	99836	82922
1968	117334	103800	92263
1969	119575	107549	95984
1970	128707	107348	95943
1971	131018	121809	102878
1972	143609	124672	117517
1973	156350	137083	119984
1974	173475	150822	134215
1975	193223	168369	148324
1976	187736	188281	166070
1977	192972	185859	186355
1978	193635	191042	185859
1979	201330	191699	191042
1980	211476	199317	191699

Appendix IV

Form IV – Form V Enrolment (Arts and Science Streams)
1965–1973 Actual as at 31st. January
1974–1980 Projected

Year	Both Media	
	Form IV	Form V
1965	22241	18513
1966	30733	22892
1967	32531	31491
1968	41046	33308
1969	43854	41104
1970	40433	44492
1971	48936	42938
1972	54152	49980
1973	61014	54275
1974	65991	62844
1975	76226	67970
1976	86835	78513
1977	100156	89439
1978	115564	103161
1979	116162	119031
1980	122267	119647

Appendix V

Malay Medium Lower VI – Upper VI Enrolment
1965 – 1973 Actual as at 30th. June
1974 – 1980 Projected

Year	Form V Enrolment (as at 31st. Jan.)	Survival Rate Form V to Lower VI	Total Lower VI Enrol.	Survival Rate Lower VI To Upper VI	Total Upper VI Enrol.
1965	2357		174		60
		10.9		99.4	
1966	3750		258		173
		15.6		112.8	
1967	6945		586		291
		11.2		98.8	
1968	9410		781		579
		10.3		112.3	
1969	15643		973		877
		8.0		120.3	
1970	14932		1249		1172
		10.1		95.4	
1971	15287		1501		1192
		11.1		103.0	
1972	14096		1704		1546
		13.5		100.4	
1973	17104		1897		1710
		13.8		100.0	
1974	20323		2360		1897
		14.0		100.0	
1975	25971		2845		2360
		14.2		100.0	
1976	32091		3688		2845
		14.4		100.0	
1977	40360		4621		3688
		14.5		100.0	
1978	46818		5852		4621
		14.6		100.0	
1979	57791		6835		5852
		14.7		100.0	
1980	119647		8495		6835

Appendix VI

English Medium Lower VI – Upper VI Enrolment
1965 – 1973 Actual as at 30th June
1974 – 1980 Projected

Year	Form V Enrolment (as at 31 st. Jan.)	Survival Rate Form V to Lower VI	Total Lower VI Enrol.	Survival Rate Lower VI to Upper VI	Total Upper VI Enrol.
1965	16156		2016		1705
		16.0		97.0	
1966	19142		2585		1955
		16.9		97.3	
1967	24546		3234		2516
		14.0		99.6	
1968	23898		3425		3222
		15.0		97.4	
1969	25461		3651		3337
		19.0		102.2	
1970	29510		4841		3730
		16.5		90.0	
1971	27651		4878		4359
		16.8		90.3	
1972	35884		4640		4611
		15.8		95.9	
1973	37171		5672		4448
		17.0		100.0	
1974	42521		6319		5672
		17.1		100.0	
1975	41999		7271		6319
		17.2		100.0	
1976	46422		7224		7271
		17.3		100.0	
1977	49079		8031		7224
		17.4		100.0	
1978	56343		8540		8031
		17.5		100.0	
1979	61240		9860		8540
		17.6		100.0	
1980	–		10778		9860

THE EMPLOYMENT OF GRADUATES OF TERTIARY INSTITUTIONS IN SINGAPORE

Philip Limb

INTRODUCTION

This paper attempts to answer the questions posed in the brief, though not in the order in which they appear in the brief.

First a definition of 'tertiary institution'. There are two universities (University of Singapore and Nanyang University), a polytechnic (Singapore Polytechnic), and a technical college (Ngee Ann Technical College) in Singapore which are collectively described as 'the tertiary institutions'. A fifth member has recently joined the ranks, the Institute of Education, but it will not be further considered in this paper, as it has produced a very limited number of graduates since its establishment in April 1973.

The two universities have a number of departments doing similar work in arts and science, but the main distinction between them is that the University of Singapore includes engineering departments, but Nanyang University does not.

Singapore Polytechnic and Ngee Ann Technical College both provide three-year courses at the same level to produce higher technicians, but the Polytechnic offers a wider range of courses — Marine, Civil, Structural, and Aeronautical Engineering, in addition to the Mechanical, Electrical, and Electronics Engineering offered by Ngee Ann Technical College.

One further difference between the tertiary institutions needs to be mentioned — the University of Singapore and Singapore Polytechnic cater mainly, but not exclusively, for students whose primary and secondary education has been conducted in the English language medium, while Nanyang University and Ngee Ann Technical College cater, but again not exclusively, for students whose language of instruction has been Chinese (Mandarin) during the primary and secondary stages.

QUESTION 2 OF THE BRIEF

What are the employment opportunities for the different types of university graduates and the comparative performance of these graduates from the various disciplines in the job market?

Recent surveys (within the last twelve months) on the employment experience of recent graduates from the four tertiary institutions show that for the majority, there is little difficulty in finding employment of a type and level considered appropriate to their training and qualification.*

For example, of 88 Ngee Ann Technical College graduates responding to a survey in February 1974, five were unemployed. Two of these had been looking for a job for less than three months and one had declined a job offer as the salary was too low. 21 of the 88 went into national service with the armed forces (which is compulsory for male Singaporeans) and of the remaining 62 who were in employment, more than half (32) had received more than one job offer.

The following table shows the employment / unemployment situation for the graduates of the four institutions as found in the recent surveys.

	Ngee Ann Technical College	Singapore Polytechnic	Singapore University	Nanyang University
Working or accepted job offer	62	207	270	164
National Service	21	200	131	71
Further education	–	16	129	97
Unemployed	5	20	58	127
Total	88	443	588	459

Students from Nanyang University are slowest in obtaining employment, probably due to fewer of them being bi-lingual, and fewer opportunities for them to take applied courses. It is also true that females take slightly longer to find jobs than males. In general, technical and professional students are most readily absorbed into employment, as can be seen from the smaller proportions of unemployed technician level students.

A factor in favour of technicians is that the industrialization of Singapore has been proceeding at a rapid pace, and recent emphasis has been on attracting high technology industries. This industrial development is likely to bring the numerical relationship between professional staff e.g. graduate engineers and technician support staff, closer to that obtained in the developed countries i.e. between 1 to 4 and 1 to 5. The table shown at Appendix A indicates that the number of university graduates in Science, Commerce, Architecture, and Engineering in 1973 at 1,142 is not strikingly different from the number of technicians (1,520) graduating from Singapore Polytechnic and Ngee Ann Technical College when considered in relation to the above ratios. It seems likely therefore that the output of technicians could be increased substantially without prejudicing their employment prospects. This is partly borne out by the table at Appendix B which shows the increase in student enrolment at the four tertiary institutions from 1963-73, and indicates that growth in student numbers has been greater at Singapore Polytechnic and Ngee Ann Technical College than at the universities, particularly in the last four years.

QUESTION 3 OF THE BRIEF

Are there cases of graduate unemployment, underemployment, and misemployment? How serious are they?

As shown in the table in the previous section, there are some cases of short-term graduate unemployment, but they are not serious. Long-term graduate unemployment, in so far as it exists, is not a result of lack of employment opportunities, but, more likely, social maladjustment, or affluent an indulgent parents. Again this is not a serious problem for the community at large.

QUESTION 4 OF THE BRIEF

With the expansion of institutions of higher education will graduate unemployment problems become more serious? What are some of the solutions envisaged to minimize the situation?

A more adequate answer to these questions will probably emerge from Brief I. It seems unlikely that the expansion of higher education will substantially affect graduate unemployment. The following quotations are from a speech by Singapore Parliamentary Secretary (Education) Mr. Ahmad Mattar, reported in 'The Straits Times' September 14th, 1974.

> "In developing nations, there is the more urgent need to have education meet specific national economic, political and social needs. In advanced countries, possibly a more liberal attitude can be adopted towards educational goals. Developing nations, with limited resources and time, have to be more practical in deciding the purpose of education. Tertiary education, particularly in developing countries, cannot be freely offered, and this is the stand the Singapore Government firmly adopts. We cannot afford the luxury of frustrated intellectuals unable to find a permanent place in society because the system did not take cognisance of requirements or needs on the outside".

This assumes that 'specific national, economic, political and social needs' 'on the outside' can be forecast sufficiently in advance to programme the inputs and outputs of the tertiary education system. Even in a small country like Singapore there is a limit to the accuracy of such forecasts, and because of this, there is always some danger of graduate unemployment at the time when the graduates emerge from the tertiary educational system.

In other words, even the most careful forecasts can turn out to be wrong, and given a minimum lead time of five years in tertiary education i.e. if a tertiary level educational need is identified, it takes at least five years to begin to produce people to meet that need, there is some possibility of graduate unemployment.

The solutions lie in careful manpower planning by the government, and speed and flexibility by the tertiary institutions in designing and approving new courses. An example of flexibility in course design, currently being put into practice at Ngee Ann Technical College in its Business Studies department, is to design a course so that the first two years cover the basic disciplines and their applications (in this case, Economics, Accounting, Statistics, Law) and the final year consists of a series of options e.g. Accounting and Finance, Personnel Management and Industrial Relations, Marketing and International Trade. There is nothing new or remarkable in a course with this structure, but a lot of thought was given at the design stage, to the relationship between the first two years, and a much wider range of possible final year options e.g. Insurance, Banking, Shipping. It is hoped that by adding final year options which are well related to the main structure of the course emerging needs will be met much more quickly than in the past.

QUESTION 5 OF THE BRIEF

What steps should be taken by the government and the university regarding graduate employment problems?

In the Singapore context, it seems that little more needs to be done. The liaison between the government, government agencies, and the tertiary institutions could no doubt be improved, as could the speed of communication, but no urgent problems of graduate employment stand out. However, there are two longer-term problems which may arise. Firstly, the academic staff of the educational institutions begin to feel that they are no longer able to pursue their legitimate interests in scholarship, research, and academic excellence. Secondly, students themselves choose only those courses which have bright employment prospects shining at the end; and as a consequence some subjects, such as art, cultural studies and philosophy begin to die because students do not enrol for courses in these subjects.

QUESTION 1 OF THE BRIEF

What are the social, cultural, and behavioural implications of the employment of university graduates?

There seem to be two problems in Singapore, one cultural, the other behavioural.

The cultural problem has two facets. One is exemplified in the title of a forum held in June 1974, the title of which was 'Materialism and Quality of Life'. The forum was intended for pre-university students. One of the speakers from Singapore University's Department of Philosophy was reported in 'The Straits Times' of June 19th, 1974 as saying that most young people who graduate from the universities and colleges are so materialistic that they are prepared to change their jobs for a small increase in salary, that people do not appear to be interested in the intrinsic nature of their jobs but in salaries, and that there is an increasing tendency to relate all values in life to materialism to the exclusion of other things.

In an editorial in 'Nanyang Siang Pau' (a Chinese language newspaper) published on May 31st, 1974 entitled 'Re-organized Ngee Ann Technical College', the following comment was made 'Nevertheless paying attention alone to what one should learn in order to use it must unavoidably lead to materialism and the decline of social values, often resulting in youths each going to his own extremes. Those who are clever and capable succeed and seek material enjoyments, while those who do not do well are disappointed and blame the world for their failure. The relationship between man and man becomes one based on material gains. The love of humanity ceases to exist.'

This decline or deterioration in values is not of course, simply a function of the employment of university graduates — there must be a number of other factors operating, such as rapid industrialization, increase in the standard of living and disposable incomes, availability of a wide range of consumer durables. Nor is this decline in values attributed only to university graduates — 'Moneytheism' is a word which has been applied to Singapore as a whole by several writers and speakers. But the graduates of universities are perhaps expected to set standards and act as an example to the rest of the community.

It is difficult to assess the importance of this problem, and even more difficult to know what to do about it. The topic of national values is quite commonly spoken about by Government ministers and discussed by educators. In June 1974 the Ministry of Education organized a seminar on national values which aimed to 'develop a greater awareness and understanding of personal and social values which the youth of Singapore find relevant and meaningful to our society today'. The students who participated were reported to be keenly interested in the seminar topics.

Thus, the problem of declining values is publicly discussed and students in general made aware of it, but without a controlled experiment, it is impossible to tell whether discussion and awareness are effective methods of stopping the decline.

The second facet of the cultural problem is said to be a lack of appreciation of the arts among tertiary institution graduates, which stems from their concentration on studies which will lead to lucrative jobs. It is difficult to say whether this problem is more serious in Singapore than in other countries.

Similar comments are made in Britain as theatres close, and orchestras and opera groups run into financial problems. At Ngee Ann Technical College there are active student societies concerned with drama, instrumental and choral music, and photography, and this suggests that the problem is not as bad as it is sometimes made out to be.

The behavioural problem may in fact have a cultural background. It is that Singaporean students often seem to find difficulty in applying what they have learnt to practical situations or real life problems. For example, a just graduated electrical engineering student was asked 'What would you do if an electric motor connected to the mains supply did not start when the control switch was put to 'ON'? and was unable to answer the question. Another aspect of this arises when candidates for teaching posts are being interviewed. They usually ask if there are opportunities for further study leading to a higher academic qualification. When asked what they will do when they have obtained a higher qualification, their answers suggest that obtaining a higher qualification is sufficient in itself, and not a means to an end.

Two reasons have been put forward to account for this phenomenon. Firstly, that education and learning are highly valued in their own right, and applying what has been learnt is of secondary importance. Secondly, that machines and equipment in the educational institutions are in short supply and therefore difficulties arise in trying to obtain a proper balance between the theoretical and practical parts of a course.

If the graduates of tertiary institutions in Singapore are to play their full role in contributing to national development, perhaps more emphasis should be given during their training to how to apply their learning after graduation.

Number of Graduates of Tertiary Institution

Appendix A

	1965	1969	1973
Universities			
Arts	330	440	613
Science	298	579	469
Law	58	47	87
Medicine	99	132	128
Dentistry	22	35	43
Pharmacy	35	27	20
Education	36	60	–
Commerce	121	321	501
Architecture, Engineering and Building, Estate Management	–	68	172
Singapore Polytechnic			
Engineering	162	263	1105
Architecture and Building	40	92	135
Accounting	52	90	–
Nautical	26	45	70
Ngee Ann Technical College			
Engineering & Business Studies	–	134	210
TOTAL	1279	2333	3553

Enrolment of Students at the Four Singapore Tertiary Education Institutions 1963 – 1973

Appendix B

	Singapore University	Nanyang University	Singapore Polytechnic	Ngee Ann Technical College	Total
1963	2433	2324	2259	386	7402
1964	2572	2273	2299	688	7832
1965	2870	2126	2335	873	8204
1966	3012	1851	2642	852	8357
1967	3281	1750	2963	400	8394
1968	3714	1991	3374	353	9432
1969	4559	2039	3310	529	10437
1970	4680	2310	4094	598	11682
1971	4703	2399	4507	1022	12631
1972	5226	2596	5764	1185	14771
1973	5635	2585	7121	1224	16565

THE EMPLOYMENT OF UNIVERSITY GRADUATES IN INDONESIA

Muhammadi Siswo Sudarmo

INTRODUCTION

The achievement of independence has created high hopes and greater expectations for better social and economic conditions. Demands for better and more democratic education have exploded as its logical consequence. Educational systems have grown and changed more rapidly than ever before. Universities, in addition to achieving the three prime objectives — teaching, research and service to the society, that is to say, to acquire knowledge, to preserve, develop, and transmit this knowledge, and to promote the application of this knowledge to the service of the society — are expected to enhance the development of the country. Educationists and economists have stated convincingly that development problems can be viewed as resource optimization problems, and that human resources are central to the process of development.

Indonesia is now in the beginning of the Second Five-Year Plan, 1974-79. An evaluation of the roles of universities in the development of high-level manpower is timely and necessary to provide feedback for the development plan in order to improve the effectiveness of the educational system in meeting the needs of national development. This short paper attempts to review the problems of the employment of university graduates in Indonesia.

DEVELOPMENT OF HIGHER EDUCATION

The growth of universities after independence in Indonesia was tremendous, especially in the period 1960-65. The establishment of new universities has been generally based on the following considerations: to provide access to higher education to more graduates of the ever expanding high schools; to enable youngsters to pursue their studies at newly established universities in the region where they live so that they do not have to go to distant universities; to give certain regions and groups within the society a prestigious image through having their own universities; and to provide income. At present, there are 39 state universities and institutes of higher education, and several private universities.

The expansion of higher education in the past had little or no direct relationship with the needs of national development, due to the absence of an integrated nationwide policy in the development of higher education. Some of the universities grew unplanned, without much regard to academic standards and national needs. A more basic approach toward relevance of the higher education system to the needs of the country was adopted only very recently. The curricula and the research programmes have been reassessed to meet the needs of national development, the quantity and quality of the graduates have been reassessed in relation to the national manpower requirements, and their contributions to the economic and social development have been reemphasized.

The First Five-Year Development Plan of the Republic of Indonesia, 1969-74, states that the educational objectives of the plan are:

— to link education with the needs of economic and social development, and at the same time, to meet the manpower needs of the community;

— to adapt the educational programmes to support the priority sectors, i.e. agriculture, agriculture-supporting industries, small and light industries, infrastructure; and

— to prepare a reform of education that would make the school an integral and useful element in the community.

UNIVERSITY GRADUATES

There are three main reasons why the social demand for education has been rising rapidly. The first is the sharp increase in popular aspiration for education. The second is the new stress of public policy on educational development as a precondition for overall national development, and parallel stress on the democratic imperative of increased educational participation rates, which means sending a higher proportion of each group to universities and for more years. The third reason is the population explosion, which has acted as a quantitative multiplier of the social demand. The interactions among these forces account for the increase in the university enrolments as inputs to the higher educational systems. Statistical data indicate that the forces which in the recent past boosted the increased social demands will not only continue but may even accelerate. The number of enrolments in the universities and institutes totalled 233,720 in 1969 and 242,000 in 1973, with an overall increase of 1 per cent a year in the period of the First Five-Year Plan.

The modernization process has not affected the education system in a large measure. There is abundant room for improvement of its efficiency and effectiveness. Such improvement often involves changing familiar routines, adopting new techniques and new distribution of labour. The inherent inertia of the educational system is very high, and this has resulted in a sluggish response to the adoption of modern methods. If the current trends prevail, the introduction of modern methods will slowly improve the efficiency of the educational process. The increase in university enrolments and the improvement of the efficiency of the educational process will contribute to an increased quantity of university graduates. In 1969 there were 5,890 graduates and in 1973 there were 6,120 graduates. The ratio of the number of graduates to the number of enrolment shows a fractional increase, which indicates that the efficiency of the educational system had not been substantially improved. The number of graduates increased 1 per cent a year in the period of the First Five-Year Plan.

Education is a good but expensive investment in national development. The assumption is that the educational system should produce the kinds and amounts of human resources required for economic growth, and that the economy would make good use of these resources. Figures on graduates are useful indicators of the output of an educational system, but in themselves they do not provide a sufficient basis for evaluating the merits of the system. To do so, we must examine other indicators, then base a judgement on the combination. It is possible to spot a number of practical indicators of the disparity between what the educational system is producing, what the economy can use at the moment, and what it will need in the future. The correspondence between these can never be perfect. Manpower surveys and requirement projections are not absolutely accurate. They are full of uncertainties and imperfections. However, subject to an active awareness of its limitations, manpower surveys and requirement projections can be very useful to educational planning. One of the indicators which can be used to measure the outputs of the educational system is the time lag between the time of graduation and the time of employment. The average graduates in engineering and natural sciences are employed immediately after graduation, while graduates in social sciences have a maximum of a six-month waiting period. The length of on-the-job training can also be used as a measure of the relevance of the education system to the needs of the society. In small companies the graduates are often directly employed without prior on-the-job training, while in bigger companies the graduates are often given up to one year's on-the-job training by the company.

THE EMPLOYMENT SITUATION

A study on forecast of manpower needs by educational attainments by McVoy * reveals that the employment opportunities for university graduates in Indonesia totalled 17,000 in 1965, 25,000 in 1969 and are estimated to be 75,000 in 1981. By comparing the job opportunities to the number of university graduates, theoretically it can be concluded that the problem of unemployment of university graduates is not very serious. There are some cases of short-term or long-term graduate unemployment; they are not results of lack of employment opportunities, but most likely due to the required social adjustment among the university graduates. There are some cases of misemployment; this comes about when the graduates prefer jobs with better pay to jobs related to their field of study, or when companies have no choice but to employ the only available graduates.

As a rule, in developing countries 70 to 95 per cent of the population live and work in the rural areas. It is precisely here that modernization has thus far made the least impact. The development process of the rural-agricultural sector should be accelerated. It is in the rural areas also that a more vital contribution is needed from some efforts are being made to attract university graduates to work in the rural areas. BUTSI, the Board of Volunteer Service of Indonesia, was established to encourage university graduates to serve one to two years as generalist community development workers and resident change agents in the rural areas.

In any event, people and jobs are usually not as rigidly categorized as is implied by the conventional employment classifications and their official educational requirements. It seems reasonable to assume that if a person has a good basic education, is well-motivated and reasonably intelligent, and has gained from his education a measure of flexibility, he can adapt quite quickly to a wide range of jobs, regardless what the book may prescribe in the way of educational qualifications. For this to happen, however, rules for specific academic requirements for particular jobs must be more flexible, and the content of the required training must be made relevant to the functions actually to be performed.

POSSIBLE SOLUTIONS

It has been stated that development problems can be viewed as resource optimization problems, and that human resources are central to the process of development. Universities as producers of high-level manpower should be geared to meet the needs of national development. The society, as the consumer of university graduates, should also provide feedback to the universities, indicating the kinds and the number of university graduates required for social and economic growth.

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*E.C. McVoy, Forecast of Manpower Needs by Educational Attainments, Board of Educational Development, Department of Education and Culture, Jakarta, 1971.

To improve the high-level manpower development, the following measures are recommended:

1. To provide better communication between the society and the educational system. A study on the current and future trends of university graduates employment structure should be carried out, the employment opportunities should be formulated in detail, and this should be reevaluated at regular intervals in order to present the actual situation and development. A better method of assessment should be found in order to eliminate the uncertainties and imperfections in the present system of assessing the quality and relevance of the outputs of the educational systems. The educational system should also inform the society about the educational process. This two-way communication will enable both the society and the educational system to formulize the needs of education for the national development.

2. To improve the relevance of the educational programme to the current and future needs of the national development. A better coordination between planners and the academic staff members of the educational institutions will lead to a better control of the quantity and quality of university graduates in meeting the high-level manpower needs for national development.

3. To introduce modern educational techniques in order to improve the efficiency of the educational system. This modernization could help to improve the quantity and quality of the university graduates, and in some cases could shorten the duration of the educational process.

4. To provide career guidance services and labour market information. This would give university students some idea of the types of professions and occupations available, so that they can better direct their study to meet the needs of society.

5. To provide an employment system which would optimize the use of educated personnel. The employment structures and incentives should be geared to the real needs of development; the university graduates should be encouraged to apply their knowledge and skills in the development of needy areas, e.g. in the development of rural areas.

CONCLUSION

In the national development, education is a necessary but expensive investment to obtain the required manpower for development. Five major problems are faced by the educational system, i.e. the ever increasing student inputs, acute resource scarcities, rising costs, unsuitability of outputs, inertia and inefficiency of process. Simple solutions do not exist, there are multiple solutions. They are difficult to implement, and they will require time before they show their full effects. The main hope of coping with these problems is the formulation of balanced strategies, which are carefully geared to match all the major elements of the problems. Furthermore, they must be pressed steadily and vigorously over a time span.

UNIVERSITY ENROLMENT

APPENDIX A

Year	1967	1968	1969
University Enrolment	191,150	213,721	233,728

UNIVERSITY GRADUATES

APPENDIX B

Institutions	1969	1973	1978	1983
State Universities/Institutes	4,000	5,200	7,050	9,540
Service Academies	200	200	400	400
Private Universities	600	720	1,580	2,610
Total	4,800	6,120	9,030	12,550

Notes:
The data are obtained from 'Estimates of High-level Manpower Supply, 1969-83' by the Board of Educational Development, Department of Education and Culture, Jakarta, July 1971.

EMPLOYMENT OPPORTUNITY FOR UNIVERSITY GRADUATES (IN THOUSANDS)

APPENDIX C

Group of Employment	1965	1969	1981
Professional/Engineering	6	10	30
Management	4	5	20
Administration	2	3	10
Commerce	1	2	3
Agriculture, Fishery, Forestry	1	1	2
Production Processes	1	2	5
Services	2	2	5
Total	17	25	75

Notes:

1. The data of 1965 are obtained from 'Social Economic Survey, 1964/65' by the Central Bureau of Statistics in Jakarta.
2. The data of 1969 and the estimate of 1981 are obtained from 'Population, Labour Force, Manpower Needs and Implications for Education' by the Board of Educational Development, Department of Education and Culture, Jakarta, 1970.

EMPLOYMENT OF UNIVERSITY GRADUATES
THAILAND'S EXPERIENCE

Nikom Chandravithun

INTRODUCTION

Since Thailand introduced its first Economic Development Plan in 1961, university education has been developed and expanded rapidly both in terms of new institutions being established, new courses being offered, and more students being admitted. Such development is attributed to two important factors, i.e. the acceleration of national, economic, and social development which entailed the need for more high-level manpower, and the increase in population and the new eagerness among the young people to continue their education at the university level.

The above factors have prompted the Government to expand the higher educational facilities, in order to produce adequate manpower at the university level to meet the demand for national development, and the increased demand by the youth for higher education. As the universities established by the Government could not admit all the students who wished to study there, the private sector took an interest in this field and set up higher learning institutions to accommodate those who could not enter the state universities.

The expansion of the institutions of higher learning has caused an influx of a large number of graduates into the labour market each year, and brought about the problems of competition in the labour market, a short period of unemployment owing to the selection of work or jobs and the graduates' own social adjustment, and also the problem of underemployment as a result of oversupply of labour.

This paper aims to give a picture of the development of higher education in Thailand, the number of graduates in the various fields of study, the present situation of employment of graduates, the entry into the labour market, and the administration of the Government in this field of activities. In the preparation of this paper, the author has received assistance and cooperation from his many colleagues and in particular, Miss Vichitra Prompunthum and Mr. Senchai Reantragoon. To them the author wishes to express his sincere gratitude and thanks.

DEVELOPMENT OF HIGHER EDUCATION IN THAILAND

Higher educational institutions were first founded in 1889 in the form of specialized schools such as medical school, law school, civil servants' school, engineering school, agricultural school, forestry school, teachers' training school, etc. These institutions were set up by the appropriate government agencies for the training of officials for government service. Therefore, the number of students admitted into these schools was rather small and limited, and most of them were from the government agencies.

The first institution of higher learning with the status of a university, i.e. Chulalongkorn University, was established in 1916, by upgrading the status of a government agency school to that of a university and transferring and consolidating other specialized schools. The second university, i.e. Thammasat University, was set up in 1933 to provide courses of study in the fields of legal studies, political science, economics, and diplomacy.

In 1942 another university was established, i.e. the University of Medical Sciences, which comprised four faculties, i.e. the Faculty of Medicine and Siriraj School of Nursing, the Faculty of Dentistry, the Faculty of Veterinary Science, and the Faculty of Pharmacy.

In the following year, two more universities were founded, i.e. Kasetsart University and Silpakorn University, where the former offered courses of study in agricultural science, cooperatives, forestry, and fishery, and the latter offered courses in painting and sculpture.

The objective of setting up the various universities was to promote advancement and expansion in the different fields of study, to be appropriate with the changing economic and social conditions of the country. During the period 1943-63, Thailand did not set up any institutions of higher learning at the university level. Instead, colleges of education, aimed at developing education, were established by improving and expanding upon the activities of the higher teachers' training schools.

In 1964 the Government realized the prime importance and need of further expansion of the higher learning institutions in the provinces, in line with the national economic and social development plan and as a result, a university was set up in the northern region in 1964, one in the northeast in 1966, and one in the south in 1967.

Following upon the Government's policy of allowing private individuals to set up higher institutions of learning, a Private Colleges Act was enacted in February 1969. Consequently, two private colleges were established in the academic year of 1970, one in 1972 and two in 1973. These private colleges offer courses of study in business administration, marketing, finance, accountancy, economics, arts, and higher professional training.

At present Thailand has 23 higher institutions of learning of which 13 institutions are under the jurisdiction of the Government. Ten institutions have been set up and are operated by private individuals. Of these, eight have the university status and two that of higher institutions of learning. There are ten branches of study offered currently, namely, humanities, education, fine arts, social sciences, law, sciences, engineering sciences, medical sciences, agricultural sciences, military and police training. The main branches are again subdivided into 174 courses of study.

At present there are about 70,000 students in institutions of higher education. The majority of the students are studying in education and social sciences, about 22,300 and 12,000 respectively. The fine arts field has the least number of students of approximately 1,000. In sciences, humanities, engineering and medicine, there are some 4,000 to 7,000 students in each field, while there are between 2,000 and 4,000 students in each of the other fields.

QUANTITATIVE AND QUALITATIVE ASPECTS OF UNIVERSITY GRADUATES

From 1889 to 1972, there were approximately 200,000 university graduates.

During the early period, there was only a small number of graduates. But the number has increased annually, especially during the period of the Second National Economic and Social Development Plan (1967-71) when higher learning was extensively expanded. There was a total of 49,858 graduates for the five-year period. This means an increase from 7,050 graduates in 1967 to 13,266 in 1971 or an increase of 88 per cent.

During the Third National Development Plan period (1972-76) there is a trend towards an increase of graduates, for example, in 1972 there were 15,351 graduates. It is estimated that for the academic year of 1973 the number would be more than that of 1972. It would be around 18,000 because of the new graduates coming from the private colleges and institutions. From 1974 onwards, there will be more graduates owing to the new 'open' university, which will begin to produce more graduates. However, about one half of the graduates of the 'open' university are already employed (they studied on a part-time basis for their degrees). The objective of such education is the upgrading of their academic qualifications.

If one considers the number of graduates in each year, there appears to be an upward trend of increase of some 3 to 26 per cent. In particular, for 1969 and 1970 the rates of increase were 25 per cent and 26 per cent respectively. Such increases may be the result of the commencement of the accelerated industrial development plan. Therefore, the educational institutions had speeded up the production of this level of manpower to meet the necessary requirements. In 1971, the number of graduates decreased greatly with a rate of increase of only nine per cent for 1970-71. The reason for this decline could be attributed to fewer students enrolling in the fields of fine arts, social sciences, law, and medical sciences than in 1970, when there was small increase in other fields of study.

However, the number increased again in 1972, and from 1971 there was an increase of 15.7 per cent due to the private institutions which began to produce their own graduates for the first time. The rate of increase of graduates for the years ahead will be higher if there is no control over the quantity of university graduates to be produced in accordance with the conditions of the labour market.

Each year the largest number of graduates are from education, forming 22 to 31 per cent of the total. Next come graduates in social sciences, constituting 23 to 26 per cent, and medical sciences forming 13 to 18 per cent. With regard to other fields of study the number of graduates is between 2 to 11 per cent in each field.

During the five years of the Second Development Plan, graduates in education amounted to 25.6 per cent of the total, in social sciences, 24.2 per cent, and medical sciences, 15.5 per cent, while in other fields, 2.8 to 8.2 per cent only. The number of graduates in each field in 1972 follows almost the same pattern, but it is interesting to note that the number of social science graduates began to increase in 1972. It is anticipated that the number will increase yearly owing to the fact that the 'open' university and the private institutions tend to provide courses mainly in social sciences.

It is also interesting to note that the overall increase of graduates still does not meet the actual manpower requirements in some fields, such as medical sciences, engineering sciences, and agricultural sciences, and there is a tendency to decline in number in these fields.

With regard to the qualitative aspect, the graduates in some fields of study, especially in the professional fields, do not have the appropriate qualifications required by the labour market. This is due to two factors, i.e. lack of information about the labour market, and the inadequacy of the number and quality of teachers and instructors, teaching aids, and training time, thus resulting in a lack of the necessary skills on the part of the graduates. Therefore, when they are employed, their work does not meet with the standards set by the companies, they have to have some more training in the establishments for a certain period of time before they are able to work properly.

PRESENT EMPLOYMENT SITUATION

The university graduates entering into the labour market represent only a minority of total entrants, because the annual increase in university graduates is rather small when compared with the number of graduates of other levels. According to the Population Census of 1960 and that of 1970, the university graduates represents 0.5 per cent of the total number of graduates in 1960, and the number increases to 0.7 per cent for 1970.

Since there is only a small number of university graduates each year and the demand for them remains persistent, the problem of seeking employment, or unemployment of such university graduates, is not serious when compared with that faced by the graduates of other levels. In general, the problem that arises usually is concerned with the individuals as such. However, the problem may become more serious if the government and private institutions keep on producing graduates in great numbers without any careful consideration of the labour market conditions and the national economic and social development policies at different periods of time. And, if no policy is formulated for rural development to induce university graduates to work in the rural areas, the unemployment of such graduates in the urban areas will increase its severity gradually.

The number of university graduates entering into the labour market has increased each year owing to the annual increase of university graduates in consequence of the expansion of educational activities of the government and the private sector. According to the Labour Survey of 1972, approximately 79,200 university graduates were in the labour force, or 0.5 per cent of the total labour force of 16,214,960, when compared with the figure of the year 1969 where only 60,400 entered into the labour force. It indicates that the number of university graduates entering the labour force has increased. It is estimated that the number of university graduates in the labour force for 1973 is 94,000 and 112,000 for 1974.

Most of the university graduates have obtained employment. Only some 2.0 to 3.3 per cent of the graduates entering into the labour force were employed, of which 90 per cent have not worked before.

More than half of the employed are males. The difference in the ratio of male-female graduates employed has become greater each year. The Labour Survey shows that the percentage of employed males has increased from 52 in 1969 to 64 in 1972. The 1970 Population and Households Census also shows that the female graduates constituted one-third of the total graduates owing to the lack of parental support for university education for girls and that some branches of study, such as agriculture and engineering, are quite restrictive and not favoured by the female students. Furthermore, females may leave the labour force earlier than males due to the limitations of their working age and other factors.

About 11 per cent of the employed are under the age of 25. This indicates that the graduates have entered the labour market immediately and obtained employment within a short period of time. Interviews with the employed graduates revealed that most of the graduates had spent one to three months in seeking employment. 76 per cent are between the ages of 25 and 44, and 13 per cent are 45 years old and over.

Of the employed graduates 96 per cent work in the urban areas, since there are more job opportunities in these areas than in the rural areas. The urban areas also provide a better standard of living, especially in Bangkok Metropolis where there exists the largest source of employment and where 77 per cent of the employed are graduates.

In terms of occupation, university graduates are the largest group employed in professional and technical fields, constituting 41.8 per cent of all the employed. Next come the services and management, 32.2 per cent. The rest are in clerical work, 15.2 per cent, transport and communication, 0.4 per cent and agriculture, 0.1 per cent.

The number of graduates engaged in professional and technical fields has increased rapidly each year. There were 26,000 graduates employed in 1969 and the number had increased to 33,810 in 1971. The number of those who are engaged in administrative and managerial positions or work has also increased from 21,300 in 1969 to 26,070 in 1972. Such a trend is due to the fast growing economic and industrial development of the country, leading to greater demand for higher level manpower each year.

It is also worth mentioning that the number of graduates engaged in clerical work has also increased. In 1969 there were only 4,300 engaged in this category, and the number rose to 7,770 in 1972, or twice as many as in 1969. As for the other categories of occupation, the annual rates of employment do not vary a great deal.

There are three main reasons for the increase in university graduates being employed in clerical work: firstly, after graduation they failed to find jobs related to their qualifications, thus necessitating their temporary acceptance of jobs that were somewhat below the level of their qualifications; secondly, many clerical jobs offer higher pay than those which fit in with their qualifications, for example, an accounting clerk of a well-established firm may obtain a higher rate of salary than an accountant of another firm; and, thirdly, some establishments, especially the large ones and those that operate mainly in the technical field, tend to require university graduates to work in some clerical capacities, such as foreign correspondence, secretarial work, public relations, accounting, marketing, etc.

In industries, university graduates constitute the largest group in industrial services, 63.6 per cent of all the employed. The next highest is in commerce, 20.6 per cent; manufacturing, 5.4 per cent; transport and communication, 3.7 per cent; public utilities and public health, 3.5 per cent; construction, 2.1 per cent; mining, 1 per cent; and agriculture, 0.1 per cent.

The most important source of employment is the Government. The result of the 1973 Survey[1] indicates that civil servants with at least bachelor's degrees total 22,356 or 12.2 per cent of all the 182,271 civil servants employed by the Government. Most of them are graduates from local institutions, and only one-fifth come from foreign institutions.

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[1] The Survey excluded the government employed teachers, public prosecution officers, judicial personnel, police and local government officers.

With reference to the fields of study, social science graduates have better opportunities of obtaining employment in many of the government agencies. They, therefore, constitute a larger number than graduates of any other fields of study, that is, 26.6 per cent of all civil servants with university degrees. The next highest is medicine, 20 per cent; agricultural sciences, 12.8 per cent; law, 10.9 per cent; engineering and sciences, are level at about 9 per cent; education and humanities, 4 per cent each; arts, 1.7 per cent; military and police, 0.4 per cent; and other fields 1.6 per cent.

In the private sector, graduates in engineering, sciences, and social sciences have better chance to obtain work than graduates in other fields. Even though there is no definite statistical information to substantiate it, it is believed that presently there are more university graduates in the government service than in private sector, despite the fact that the latter offers higher earnings and income. There are two reasons for this: first, more vacancies are available in the governmental sector and the large industrial projects that require high-level manpower in the private sector are still very few; and secondly, in the Thai society there still remains the belief that security in life can be found in the government service.

Graduates who work in the private sector have a higher scale of salary than those in the public service. Those in the latter get 1,645 Baht as their starting monthly salary, while those in the former start with some 2,000 Baht per month. For those with some experience and the required qualifications, they would get not less than 5,000 baht per month.

NATURE OF UNEMPLOYMENT

In comparison with the rates of unemployment of graduates of other levels, the rate of unemployed university graduates is the lowest, accounting for only 3 per cent of the total unemployed. However, there is a trend to increase annually. The rate of university unemployed was only 2 per cent in 1969 and increased to 2.7 per cent in 1971 and then 3.3 per cent in 1972. Should the number of university graduates continue to enter into the labour market at an increasing rate as previously mentioned and no adequate employment opportunities be created, the rate of unemployed university graduates may increase to 5 per cent in 1975.

Furthermore, if the graduates are prepared to accept employment or jobs requiring lower qualifications, or work where the scale of pay is less than it should be, or in work unrelated to their qualifications, the situation of underemployment and misemployment of high-level manpower would be further aggravated.

The Labour Survey shows a figure of 1,200 unemployed university graduates in 1969. It increased to 2,650 in 1972, double the 1969 figure.

Most of the unemployed graduates are in the urban areas, especially Bangkok Metropolis, because most of them have their permanent residence in other provinces or in the rural areas and have no wish to return home, since Bangkok Metropolis and the surrounding provinces constitute the largest source of employment and no incentive exists in the rural areas where they came from in terms of facilities and convenience in work. Moreover, the important industries have not yet extended beyond Bangkok Metropolis into the provinces. Therefore, there is seldom need for high-level manpower in the rural areas. Should there be any need for it, temporary help or assignment would be utilized. As a result, the labour market's demand for university graduates is confined to the Bangkok Metropolitan area.

According to the Labour Survey of 1972, it appears that 84 per cent of the unemployed had not worked before and entered into the labour market for the first time. The rate of unemployed graduates in the academic line was four times greater than that of the unemployed in the professional line, owing to the smaller number studying and completing professional studies, and a great demand for professional graduates in the labour market.

SEEKING EMPLOYMENT

Today, most of the people who have obtained employment do so through their own efforts and the public media. According to a survey undertaken, out of 100 persons who obtained employment, 59 per cent did so through their own efforts, 25 per cent through the public media, and 13 per cent through the assistance of friends and relatives. A very small number of only 7 per cent used the services provided by the Government and universities.

Graduates in the fields of study which are in great demand, such as engineering, agriculture, and sciences, find employment fast and through their own efforts without relying on the Employment Service of the Department of Labour. Social science graduates find work slower because there are many who graduate in this field, and who major in different subjects.

Although the number of graduates is large, the actual number of job applicants who utilize the services of the Department of Labour constitutes a very small percentage. This may be due to the fact that at present, university graduates have ample opportunities in the labour market; thus, they seek employment on their own efforts or with the help of friends and relatives. However, the employment statistics of the Department of Labour show that the graduates have now started to use the Employment Service of the Department to a greater extent. From January to June 1974 a total of 2,454 graduates were recorded to have applied for jobs through the Department of Labour.

It is interesting to note that about 28.6 per cent of all the applicants were already employed. According to interviews made of some of the applicants, the reasons for their applying for new jobs include termination of employment contract; the desire for better incomes, and jobs that relate to their educational qualifications; and the excessive working hours of their present jobs. Those who are already employed have a high salary scale of 3,000 to 4,000 Baht per month, particularly the engineering graduates who obtain very high salaries.

Most of the graduates applying for jobs through the Department of Labour have never worked before. They seek employment upon graduation. But some are already employed before graduation, and their salaries are within favourable range.

The graduates often apply for jobs at several places at a time in order to select jobs that are satisfying and suitable to their needs. Most spend about one to three months in seeking employment. But many spend more than six months. The reasons for such delay may be due to their being careful in selecting the most suitable and satisfying jobs available, and the non-pressing need in obtaining employment for some of them.

However, social science graduates spend more time in seeking employment than any others. According to a survey of 100 persons who already obtained employment, two-thirds of those who spent more than four months in seeking employment were social science graduates.

Today, the graduates tend to seek employment in the private sector more than in the public sector and Government. The reasons for this change of attitude are that the private sector offers higher pay, thus making it possible for them to lead a more comfortable life, and the fact that it has also begun to provide more security for its employees, and rapid advancement for the more capable people. In addition, the private sector gives more freedom, while the public sector has many rules and regulations to be observed. However, many still choose to work in the Government, believing that there are advancement, security, predictable opportunity, and sufficient income for them to make a living.

In terms of salary and pay, the graduates aim at getting not less than 1,500 Baht per month and the initial stage, reasoning that this rate is in line with the current cost of living and their educational qualifications.

Most of them prefer to work in the capital — Bangkok Metropolis, even though their homes may be in other provinces. The main reason is that Bangkok Metropolis provides more opportunities to gain experience. It also provides better comfort than upcountry, where facilities are still lacking. Thus, it is almost an impossible task to persuade the graduates to work outside Bangkok Metropolis.

LABOUR MARKET SITUATION

At present, the problem of graduates entering into the labour market is not serious as yet in view of the fact that most of them can find employment within a short period of time. The reason is that the number of graduates produced each year is still less than the demand for them. There may be some graduates who are still unemployed, because the jobs available are either unsuitable or offer low salaries, or they are temporarily unemployed due to the termination of their former jobs as mentioned earlier. As for underemployment or working in jobs that are below or unrelated to their qualifications, this problem exists to a less extent and is not considered serious at present.

The current labour market for the graduates remains quite flexible; graduates can obtain employment rapidly and change their jobs several times. A survey shows that 64 per cent of those who are working at present have changed their jobs at least once, and some have changed as many as four times.

According to the Third Development Plan (1972-76), there is a need for a work force of about 2.6 million. Out of this number, about 100,000 belong to the high-level manpower, most of which will be in the professional group — approximately 78,000 are needed. Another 30,000 are needed in the services and management fields, and probably a smaller number in other occupations and professions.

During the period of 1972-76 of the Third Development Plan, there will be a great shortage in the higher level manpower group for administrative personnel, managers, medical doctors, scientists, and engineers.

Though the need for manpower in the administrative and managerial fields is smaller than that in others, it incurs the greatest problem. At present, this type of higher level manpower with the relevant knowledge and experience is severely lacking. Since its number remains relatively small and the new graduates with no experience cannot fill such high-level positions straight away, competition arises among business establishments with large investments and capital for this type of manpower. The large establishments 'pirate' the needed manpower from the smaller ones. Those small and medium-sized establishments are always faced with such pirating practices and the problem of brain drain. They are at a disadvantage, since they have constantly to replenish this type of manpower. Even civil servants who are able and experienced are often pirated by the private sector.

There is a great shortage of manpower in the medical field. Though it was estimated that Thailand would have a total of 6,200 medical doctors by the Third Development Plan, the ratio of doctors to population is 1:7,000 which is higher than during the Second Development Plan at 1:8,000. But if the present ratio is to come any closer to the universal one of 1:1,000, Thailand will have to produce many more doctors in order to eliminate shortages in areas outside Bangkok Metropolis, particularly in the rural areas. Similarly, there are not enough qualified registered nurses.

Since Thailand is in the stage of accelerated industrial development and educational development in sciences, the demand for high-level scientists under the Third Development Plan increases to 8,500. Out of this number, 2,400 university lecturers with degrees in sciences will be needed under the accelerated programme to produce more scientists.

Even though it has been said that Thailand would not be short of engineers, since they have been produced in an accelerated manner to meet the need, the shortage of well-trained, experienced, and skilful engineers still persists. Thus, it is necessary to produce engineers in terms of quality rather than quantity in order to meet the needs of the labour market. Otherwise, the problems of unemployment and shortage of engineers may take place simultaneously.

Because there is a shortage of higher level manpower with knowledge, experience, and skills, the private sector employs a large number of expatriates to work in Thailand. According to a survey in 1970 undertaken by the Office of National Economic and Social Development Board and National Research Council, there were 2,746 foreigners working in Thailand in this category. In the private sector there were 2,360. Based on the record of those who applied for Aliens Work Permits at the Department of Labour about 2,200 have been granted the permits to work in Thailand as of June 1974.

At present, the Government remains the largest employer in the labour market. Each year it absorbs a large number of graduates, since it uses high-level manpower in every branch of activities. The Office of the Civil Service Commission has estimated the manpower requirements in various governmental agencies in 1972 to be 4,927 university graduates of different fields of study. The needs for engineering, medical science, and social science graduates are greater than the needs for those of other fields. The demand for higher level manpower will persist in the coming years, because the Government has to implement the Third Development Plan.

In the private sector the need for high-level manpower also exists, particularly in the large establishments with extensive operations, or establishments which use high production techniques, for example, oil refinery plants, steel manufacturing plants, etc. However, the need of the private sector differs from that of the Government in that the former requires well-experienced and skilful workers to achieve maximum productivity. The public sector or Government often accepts newly graduated workers, because it cannot always pay higher salaries which commensurate with capability, but offer them the predetermined and regulated rates of pay.

The private sector can pay any rates, as long as the applicant possesses the required capability. Many of those who left the public sector of the government service for the private sector earn more than 10.000 Baht per month.

COMPETITION IN THE LABOUR MARKET

Since the number of graduates in education, social sciences, law, and humanities entering into the labour market is greater than that in other fields of study, competition is quite keen indeed. Therefore, those who need these types of manpower have ample opportunities to select the required personnel.

In agriculture, it has been estimated that there would be an excess of manpower of 2,300. But during this period Thailand has embarked on a policy of accelerated agricultural development, and the need for agricultural graduates would increase. Therefore, the anticipated excess would not be very great.

The academic year of 1973 was the first time that five private colleges produced graduates, and the academic year of 1974 would witness the first group of graduates from the 'open' university — Ramkhamhaeng University. Therefore, if the Government does not undertake to control the quantity of higher level manpower produced, there will be fierce competition in the labour market, because there is only one big source of labour market, namely, the public sector. Its future needs may become limited when all positions in various public offices are filled. Any additional requirement will be for replacement of the lost manpower or for new needs which will be rather limited. The labour market of the private sector will remain tight. Each year a large number of people apply for jobs, but only a small number is actually employed.

The increasing number of graduates entering into the labour market and the fixed number of job opportunities which is not in proportion to the number of graduates, will lead to unemployment, underemployment, and the necessity to accept jobs that are unrelated to the graduates' qualifications.

As for competition among graduates in the public sector, no special ability or experience is required, since the minimum qualifications are predetermined and selection is made through competitive examinations. Therefore, the new graduates enter into competition by merely using the knowledge and ability acquired during their academic training.

Competition in the private sector is stressed on the highest capability. To compete with others the graduates have to show special knowledge and ability as well as experience. Since the rates of salaries in the private sector are not as rigid as those in the public service, more applicants enter into competition. When industrial establishments resort to pirating higher-level manpower with knowledge, experience, and skills, competition becomes even keener.

POSSIBLE SOLUTIONS

On the question of the quantitative and qualitative aspects of university graduates and the labour market situation, it is felt that the Government should pay greater attention to the unemployment and underemployment of graduates. Unless some measures or definite policies are taken at an early stage, the problems will multiply in intensity.

In the Third National Development Plan a target for the production of graduates has been set. Each year students will be admitted into various fields of study, the number of which will correspond with the needs of the market as anticipated. But during the Development Plan period, changes have taken place both in the economic situation and educational policy of the country. The economic situation has expectedly become unfavourable, thus halting economic and industrial expansions.

In the educational field, five private colleges have been set up which produce graduates, and an 'open' university has also been established, thus making it impossible to effectively control the quantity and quality of the graduates. This is one reason for the large increase in the unemployment rate of university graduates. Though one half of the 'open' university graduates are already employed, there will still be problems of underemployment, and of demanding the rights in accordance with the qualifications they have now obtained.

Since the Government makes policies and controls higher education and learning, it should consider the said problems and find corrective and preventive measures for them with urgency. The measures to be taken may include the following:

1. The Government should study and conduct research on both current and future labour market trends at regular intervals, in order to understand the real situation, the development, and problems which may arise at each period. This information will help the planning and supervision of the operations of the educational institutions in line with the set target.

2. There should be closer coordination among the planners, administrators, and the educational institutions, so that the economic planning, the implementation of policies, and the operation of the educational institutions are in harmony. Such coordination should be extended to curriculum setting, and the number of undergraduates admitted into the various fields of study each year.

3. The agency which is responsible for the operation of the institutions of higher learning should be well informed of the labour market situation, so that the quantity of graduates to be produced can be properly controlled.

4. When graduates of certain fields of study still lack the necessary qualifications and quality as required by the labour market, encouragement should be given to promote the improvement of their qualifications based on the labour market requirements at each period of time. This will eliminate the need of the private sector to invest in extra training for the graduates. And, if the local graduates show high efficiency, the need to hire any overseas graduates or foreigners will decline.

5. To encourage the graduates to apply their knowledge and capability in the development of the rural areas, the Government should create more jobs and facilities in areas beyond Bangkok Metropolis by promoting the expansion of industries into such areas.

6. One of the reasons for the unemployment and underemployment of graduates is their unwillingness to work in areas far away from Bangkok Metropolis, particularly in the rural areas. It is also clear that there is an acute shortage of medical doctors, nurses, and teachers in the rural areas. But very few will accept positions there because of the lack of facilities and comfort. The Government should extend such facilities into the rural areas. This would encourage the graduates to work in areas outside Bangkok Metropolis, which would reduce unemployment and underemployment, as well as correct the situation where graduates hold jobs not related to the qualifications obtained.

7. To prevent high school graduates from taking courses of study at the university where there is only a small demand for that type of manpower, or excess of supply of manpower, already exists, both of which will mean difficulty in obtaining employment after graduation, it is necessary to set up vocational guidance services in high schools with closer cooperation from the planning and administrative units or agencies.

8. Institutions of higher learning should also have career guidance services and provide labour market information in addition to those provided by the Department of Labour, so that those who have almost completed their studies might have some ideas on the types of occupation or profession to select, or the types of industry they may enter.

9. Since the graduates often face problems which are common among new recruits due to the lack of understanding of rules and regulations, work methods and procedures in the government agencies and private enterprises, which at times entail failure in work, there should be a practical training programme during the last 2 academic years prior to graduation to give some working experience to them before embarking on their working life. This will help to eliminate any possible problems that may arise between the management and the newly recruited graduates, thus promoting better industrial relations. In addition, it will serve as a guideline for the graduates to obtain employment promptly and in accordance with their wishes.

10. There should also be measures to reduce the number of foreigners employed in Thailand in the occupations which can be undertaken by the Thai graduates, in the form of new legislation and industrial development policy.

CONCLUSIONS

Institutions of higher learning have been in existence in Thailand for the past 85 years. But during the first 50 years there were very few graduates. The educational institutions and the fields of study offered were greatly limited because the economic and social situations of Thailand were predominantly agricultural. There was then little need for higher level manpower. Therefore, the production of university graduates was based on special circumstances or on the requirements of the governmental agencies concerned. At that time the private sector played on major role in the economy as it does today. The need for high-level manpower could be considered non-existent.

It was only after the Second World War that Thailand began its industrial development to a limited extent. The First Economic Development Plan was launched in 1961 for the development of the country. It was then found that there was a shortage of higher level manpower for development purposes in the various fields. In consequence, a plan for the development of higher education was formulated to increase the production of higher level manpower by expanding educational institutions and the quantity of enrolments.

At first, the number of graduates produced failed to meet the needs of both Government and the private sector. Thus, there were no problems of unemployment and underemployment in consequence of being employed in jobs unrelated to qualifications possessed. Later, particularly during the past few years, the problem of underemployment began to develop for graduates of certain fields of study owing to overproduction. But the problem of unemployment remains unclear. However, if the policy of higher education is not revised and adjusted to the present and future economic situations and the labour market needs, the problems of unemployment and underemployment of graduates will take place for certain, and may multiply in intensity.

In order to prevent such problems from arising, the Government should set up measures including a higher education development policy, the development of rural areas outside Bangkok Metropolis, the provision of incentives and other persuasive methods for graduates to work outside Bangkok Metropolis, the expansion of industrial zone, and the proper administration of the labour market. Moreover, there should also be some measures for the maximum utilization of higher level manpower.

APPENDIX 1

NUMBER OF GRADUATES BY FIELD OF STUDY
BASED ON UNESCO SYSTEM
ACADEMIC YEARS 1967 – 1972

Fields of Study	1967		1968		1969		1970		1971		1972	
	No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage
Humanities	337	4.8	394	5.1	513	5.3	765	6.3	850	6.4	1,074	7.0
Education	1,521	21.6	1,704	22.1	2,145	22.2	3,156	25.9	4,217	31.8	4,778	31.1
Fine Arts	279	3.9	297	3.9	217	2.3	355	2.9	268	2.0	303	2.0
Social Sciences	1,613	22.9	1,962	25.4	2,549	26.4	3,105	25.5	2,825	21.3	3,427	22.3
Law	513	7.3	682	8.8	994	10.3	973	8.0	842	6.3	1,121	7.3
Sciences	266	3.7	249	3.2	543	5.6	454	3.7	486	3.7	582	3.8
Engineering	544	7.7	647	8.4	775	8.0	877	7.2	1,239	9.3	1,069	7.0
Medical Sciences	1,239	17.6	1,415	18.3	1,454	15.1	1,860	15.3	1,773	13.4	2,205	14.3
Agriculture	738	10.5	370	4.8	467	4.8	630	5.2	766	5.8	805	5.2
TOTAL	7,050	100.0	7,720	100.0	9,657	100.0	12,175	100.0	13,266	100.0	15,364	100.0

Source: Bureau of the State Universities, Office of the Prime Minister, Bangkok, Thailand.

APPENDIX II

NUMBER OF UNIVERSITY GRADUATES BY OCCUPATION
1969 AND 1972

Occupations	1969		1972	
	Academic	Vocational	Academic	Vocational
Professional, Technical and Related Workers	23,200	1,600	26,760	9,690
Administrative and Managerial Workers	14,800	3,100	18,850	3,510
Clerical Workers	1,500	800	4,470	3,300
Sales Workers	1,400	200	3,130	810
Farmers, Fishermen, Hunters, Forestry Workers and Miners	–	–	–	–
Workers in Transport and Communication	300	200	300	250
Craftsmen and Manufacturing Workers	500	1,600	430	2,070
Service Workers	2,500	500	2,480	550
TOTAL	44,200	8,000	56,420	20,180

Source: Labour Force Survey, National Statistical Office, Office of the Prime Minister, Bangkok, Thailand.

APPENDIX III

NUMBER OF UNIVERSITY GRADUATES BY INDUSTRY
1969 and 1972

Industries	1969		1972	
	Academic	Vocational	Academic	Vocational
Agriculture, Forestry, Hunting and Fishery	–	–	60	–
Mining and Quarrying	100	–	710	70
Manufacturing	2,200	700	8,010	1,140
Construction, Repair and Demolition	2,300	700	1,310	360
Electricity, Gas, Water and Sanitary Services	1,500	1,200	1,560	1,140
Commerce	7,200	1,100	12,330	3,190
Transport, Storage and Communication	1,500	400	1,900	990
Services	34,800	5,500	35,550	13,260
TOTAL	49,600	9,600	51,430	20,150

Source: Labour Force Survey, National Statistical Office, Office of the Prime Minister, Bangkok, Thailand.

APPENDIX IV

NUMBER OF UNEMPLOYED PERSONS AT UNIVERSITY LEVEL 1969 AND 1972

	1969			1972		
	Total	Employed	Not* Employed	Total	Employed	Not* Employed
Whole Kingdom:						
Academic	900	100	800	1,880	190	1,690
Vocational	300	–	300	770	190	580
	1,200	100	1,100	2,650	380	2,270
Municipal Areas:						
Academic	900	100	800	1,880	190	1,690
Vocational	300	–	300	770	190	580
	1,200	100	1,100	2,650	380	2,270
Bangkok–Thonburi:						
Academic	800	100	700	1,670	190	1,480
Vocational	300	–	300	540	60	480
	1,100	100	1,000	2,210	250	1,960

*Not Employed means persons with no previous work experience.

Source: Labour Force Survey, National Statistical Office, Office of the Prime Minister, Bangkok, Thailand.

APPENDIX V

MANPOWER DEMANDS IN THE THIRD NATIONAL ECONOMIC AND SOCIAL DEVELOPMENT PLAN (1972 – 1976)

Occupations	Estimated Demands	
	Number	Percentage
Professional, Technical and Related Workers	78,000	3.0
Administrative and Managerial Workers	30,000	1.2
Clerical Workers	69,000	2.7
Sales Workers	450,000	17.4
Farmers, Fishermen, Hunters, Miners and Related Workers	1,560,000	60.3
Workers in Transport and Communication	89,000	3.4
Craftsmen, Manufacturing and Related Workers	213,000	8.2
Service Workers	97,000	3.8
TOTAL	2,586,000	100.0

Source: Office of the National Economic and Social Development Board, Office of the Prime Minister, Bangkok, Thailand.

APPENDIX VI

HIGHER LEVEL MANPOWER DEMANDS OF THE PUBLIC SECTOR AND SUPPLY OF GRADUATES BY FIELD OF STUDY

Fields of Study	Number of Requirements 1972	Number of Graduates	
		Local – 1971	Overseas – 1972
Engineering	1,108	2,564	23
Sciences	264	733	13
Medical Sciences	1,447	1,935	10
Social Sciences	1,380	4,988	41
Humanities	44	808	9
Agriculture	445	1,297	9
Fine Arts	83	829	5
Law	112	1,577	3
Education	44	12,166	9
Military and Police	–	349	1
TOTAL	4,927	27,226	123

Source: Research Section, Standard and Development Division, Office of the Civil Service Commission, Bangkok, Thailand.

PART IV

CONCLUSIONS

SUMMARY OF DISCUSSIONS

Diana Fussel and Andrew Quarmby

The underlying theme running through the discussion on the topics chosen by RIHED for the various sessions, and also the other topics introduced by participants, was the question of the discrepancy between manpower needs and available manpower, in particular:

— the extent to which such a discrepancy exists, the form it takes, and its consequences.

— its causes.

— possible ways to reduce or eliminate it and the extent to which these are the responsibility of universities and other institutions of higher education.

Particular attention was given to this question in relation to high-level manpower, but the relationship between manpower needs and availability at other levels, also received some attention, particularly where this had an effect on or was caused by the situation at the higher level.

THE EXTENT AND FORM OF THE DISCREPANCY

Participants from all the countries represented at the workshop reported the existence of some form of discrepancy between manpower needs and available manpower in their countries, although the form and extent of this discrepancy in Singapore seems to show the greatest difference from the situation in the other countries. In Singapore, until the recent economic slow-down eased the situation, the discrepancy has taken the form of a shortage of labour at all levels, from highly-skilled to unskilled.

All the other participants reported shortages at the higher end of the skill scale, although the patterns of these shortages were by no means the same, with, for example participants from Laos reporting a shortage of high-level manpower in all fields, and participants from Thailand and Vietnam reporting a shortage in some fields and a surplus in others (and with Vietnam indicating that the greater shortage was in middle-level skills).

However, while participants from all countries reported a discrepancy in their countries between manpower needs and available manpower, there appeared very little accurate and detailed information available in the countries concerned (with the exception of Singapore) on the extent and nature of this discrepancy. This lack of accurate data on the discrepancy clearly handicaps the countries concerned in their efforts to reduce or eliminate it.

The nature of the discrepancy was by and large stated in general terms by participants, e.g. in Vietnam, 'too few graduates with qualifications the country greatly needs, and too many graduates with skills out of gear in national development', although in some cases more specific descriptions were given of limited aspects of the problem, e.g. in Laos 'the doctor-population ratio is 1:60,000', and in Vietnam, 'when the already approved investment projects ..... are implemented they ..... will need several thousands of assistant engineers and technicians to supervise them. In the meantime, the annual output of assistant engineers and technicians in Vietnam is about three hundred'.

THE CAUSES OF THE DISCREPANCY

The great majority of the discussion during the first two days was spent on identifying the causes of the discrepancy between manpower needs and available manpower, partly because of the wide range of views as to what were the causes, perhaps partly because it was felt that identification of the causes must precede a search for a solution, and perhaps partly because no clear solutions were immediately suggested for the discussion to move on to.

The following suggested causes of the manpower discrepancy were identified although there was by no means a consensus as to the relative importance of the various factors:

1. The Incompatibility Between the Objectives of Some Universities (and Other Institutions of Higher Education) and Development Strategies

Papers in the opening session described the development strategies of four of the countries represented at the Workshop and in the process gave a representative cross-section of the range of socio-economic situations existing in the region and the different development strategies that had been adopted as a result.

These same few papers also indicated differences in the degree to which development strategies were compatible with the objectives of universities and other institutions of higher education in the countries concerned.

In the case of Singapore and Laos, it appeared that higher education institutions were being required to follow very closely in their objectives the general development strategy produced by their countries' national planning bodies.

In the case of Singapore this appears to reflect the degree to which all institutions in the Republic now closely follow the Government's plans. In the case of Laos, this appears to stem from the fact that the country's only institution of higher education is in the process of being created, as part of the national development strategy.

In the case of Thailand and Vietnam (and presumably in other countries in the region with the same combination of long-established universities and a lack of the degree of nationwide organization that exists in Singapore), it appears that the roles of universities as conceived by the university community are not entirely compatible with development strategies as conceived by national development planning bodies, and it was suggested that this incompatibility was one of the major causes of the discrepancy between high-level manpower needs and available manpower in these countries.

Indeed, there was a wide range of views shown at the Workshop on appropriate roles for universities and other institutions of higher education.

It was suggested by some that the role of universities and other institutions was primarily to produce high-level manpower to meet their country's development needs, with the extent of public expenditure in higher education providing ample justification for this.

Others saw the production of high-level manpower as only one of several important purposes (with other suggested purposes including accumulation, transmittal and generation of knowledge, service to the community in several different ways, the preservation and development of culture, and invention and innovation) and had differing views among themselves as to the relative importance of these various purposes.

Still others were questioning whether universities were really suitable institutions for the production of high-level manpower, or whether other means of producing high-level manpower should be used, with universities playing a different role.

Information and views presented by participants, (e.g. from Thailand: 'universities are now staggering between ..... conflicting images' and from Singapore: 'many planners and administrators now appear to have second thoughts about the role of universities in the development process') indicated that the lack of consensus, and indeed divergent views within a given country or even a given institution as to appropriate roles for universities and other institutions of higher education were at least contributing to the lack of solutions to the manpower discrepancy described previously, and probably had contributed to the creation of the manpower discrepancy in the first place.

In some countries the areas of incompatibility between university objectives and national development strategies could also be either the cause or the effect (or both) of another situation revealed by the first papers from Thailand and Vietnam. This is the relatively low degree of participation (when compared with some neighbouring countries) by the university community in the national development planning process.

The question was not explored very deeply although mentioned by several speakers, with a participant from Vietnam commenting on 'the very limited role played by the university community in formulating national development strategies ..... the government has not altogether given up the attitude of distrust toward the universities and has not yet been sufficiently aware of the capability of the contributions of higher education in these fields'. In contrast, a participant from Indonesia commented on the fact that in his country the national development planning body drew most of its key personnel from the university community, although largely from one faculty of one university.

As a further reason for the incompatibility between the objectives of some institutions of higher education and some development strategies, one participant mentioned the frequent lack of clear priorities and due balance among the various development sub-processes served by the education development sub-process, which suggested that even if the university community might wish to make the university's objectives fully compatible with development strategy it might sometimes find great difficulties in identifying priorities to relate to.

A participant from Vietnam said that in his country universities were quite willing to cooperate with the Government in order to help achieve national development goals, e.g. through the production of sufficient high-level manpower, but lacked adequate resources to be able to do so.

Other participants criticized the way that pressure on universities to produce more high-level manpower tended to over-emphasize the skill certification aspect of universities, and one participant commented that if universities became just screeners and indicators of abilities of students for employers, there were less expensive ways of providing such information.

One participant, questioning the suitability of the university to produce high-level manpower, linked this to what he called the 'delayed development effect' when he queried whether countries were wise to attempt to take the shortest route in trying to catch up in development with other countries by jumping straight to the use of high technologies and sophisticated bureaucracies.

Although this was challenged on the grounds that rising expectations expressed as political pressure forced countries to choose the shortest route, the importance of the role of universities in development was questioned by other participants also and it was suggested that in-service training or more middle-level skills training might be far more effective than trying to use universities to train high-level manpower.

It was suggested that developing countries can afford very little education but need a great deal of training, and two participants questioned the wisdom of educational institutions turning out specialists when generalists fitted better the changing pattern of needs.

Some discussion on appropriate time-periods for national development plans produced agreement on the need for coordinated but flexible plans for short, medium and long periods, but it was considered that inability to implement on plan was usually a far bigger problem than developing the plan itself.

2 The Difficulty in Estimating Manpower Requirements

Of all the aspects of the general theme discussed at the Workshop there was the greatest agreement on the great difficulties that existed in producing reliable estimates of manpower requirements. However, there was considerably less agreement as to whether this was a crucial factor in creating the discrepancy between manpower needs and available manpower.

These difficulties in producing reliable estimates were seen as resulting from the inaccuracy of the available data, or in some cases from the lack of any data at all. The tendency in some cases for manpower demands to exceed manpower needs (i.e. for some users of high-level manpower to overstate their requirements, both in quantity and level of training) was mentioned specifically, as was the question of national ideologies, as reflected in economic planning, affecting the accuracies of manpower requirement estimates. For example, manpower requirements could change very quickly in a free enterprise economy dependent on market forces, and manpower estimates could therefore quickly become irrelevant, whereas in a state-controlled economy changes in manpower requirements would tend to occur much more slowly.

Discussion on the difficulties of producing reliable estimates of manpower requirements resulted in the clearest and most widely-supported suggestion for follow-up action, i.e. some action to help the countries represented at the Workshop to develop better systems of estimating manpower requirements.

This agreement did not, however, extend to the question how far estimates of manpower requirements (even reliable ones) should be permitted to influence university policies and practices.

It was suggested in one paper that the manpower requirements approach which was originally developed for use in OECD countries was not relevant for a number of reasons, that its use 'has fostered a tendency among educational planners to exaggerate the educational investment needed for economic development' and that a dangerous myth existed that it was only necessary to identify and adopt the appropriate methodology and problems would automatically begin to be solved.

The manpower requirement approach to educational planning was questioned by other participants also. The paper just cited, by a participant from Singapore, suggests another reason why educational planners should not rely too heavily on estimates of manpower requirements: 'too rigid a conception of the university's role in preparing graduates for occupations may be unhealthy because of the tremendous capacity on the part of a market economy to adapt the characteristics of workers to its production needs. While it is important to teach market-relevant skills, it is also important that a capacity to respond flexibly to social and technological changes be developed in graduates'.

3. The Difficulty in Translating Estimates of Manpower Requirements into Effective Action

The question of how estimates of manpower requirements could be translated into effective action to meet those requirements (e.g. through development planners giving appropriate instructions to universities) was a logical sequel to the considerable interest shown in improving systems of making such estimates. However, although this question was raised it was not explored very far.

4. The Enrolment Explosion

Attention was drawn to the dilemma faced by many educational planners resulting from the great social pressure to increase higher education opportunities. In many cases, where compliance with this pressure has resulted in increases in enrolments at arts and humanities faculties (and even in some countries in science and engineering faculties) the result has been to increase the discrepancy between manpower needs and the educational qualifications of available manpower, thereby creating other social pressures.

Statistics from Vietnam, where the draft exemption value of university enrolment has added to existing social pressures for higher education opportunities, provided a striking illustration of what could happen in a situation where enrolment was not controlled.

Countries facing the problem of controlling enrolment showed great interest in the methods used by and the experiences of countries such as Singapore and Thailand which had in different ways controlled various aspects of enrolment for higher education.

5. Lack of Contract Between Universities (and Other Institutions of Higher Education) and the Realities of the Society Around Them

Frequent mention was made of the belief that universities and other institutions of higher education were 'far too much 'ivory towers', isolated from the realities of the society around them and that this was a reason why these institutions helped create the manpower discrepancy mentioned before.

It was suggested that universities should make much more contact with the employers of the graduates they produced, with practitioners of the professions they taught, and with their own graduates following graduation, and that all these should be invited to make suggestions for the revision of course content and emphasis.

It was also suggested that members of the university community, by undertaking research or consultative contacts in the private or public section outside the university could help keep in touch with the realities of society.

With the same purpose in mind, the value was also stressed of participation by students and faculty members in study-service and other community service activities.

The need for two-way communication between Government and the universities, and universities and industry was stressed by a participant from Cambodia.

6. Distortions Produced by Incentive Systems

Two papers discussed the influence of potential earnings on people's choice of occupation (and therefore field of study) and on the level of education they sought.

In this discussion other factors that influenced career choice, such as temperament, disposition, family ties, and commitment to meeting society's needs were also acknowledged, but more detailed examination was made of the effects of incentive systems and it was demonstrated that in one country, the structure of the civil service pay-scale greatly encourages high school graduates both to seek a degree, and also to choose what are considered easy faculties in which to get a degree, even though these fields are already overcrowded with graduates.

It was suggested that to prevent incentive systems contributing to the discrepancy between manpower needs and available manpower, they should reflect the realities of the supply of and demand for graduates in different fields.

7. Competence at the Expense of Commitment

Another reason advanced for the manpower discrepancy was that perhaps in concentrating on developing competence through training, the question of commitment was neglected.

The following three situations were cited as indicating that lack of commitment was contributing to the manpower discrepancy.

1. Young people going abroad to study and not returning once they have qualified.

2. People going abroad after they have qualified and not returning.

3. The reluctance of many qualified people to accept employment in remote or rural areas.

Some participants questioned the emphasis given to economic returns in education and training and advocated that people should be regarded as ends as well as means, that they had value as cultural entities as well as units in a production estimate, that idealism and aspirations should be considered as well as economic factors and skills.

Two participants mentioned programmes in their countries which involved university graduates and students in village-level development work, and a participant from Malaysia stressed that there was no need for community service to be in conflict with studies and that perhaps it should become part of the curriculum.

This whole area of study-service schemes, (which was the subject of a suggestion to RIHED at its 1973 Regional Workshops) was not explored very far despite the concern expressed by more than one participant as to how to move educated and skilled manpower out of areas where it was in surplus, to rural areas where it was needed.

8. The Interrelationship with Middle-Level Skills

Several participants stressed that they felt the discrepancy between high-level manpower needs and available manpower either partly resulted from, or was compounded by, the disproportion between high-level and middle-level manpower within certain fields, with high-level manpower frequently being made ineffective by the lack of supporting middle-level manpower, and that there was far greater need to pay attention to solving the problems of supplying sufficient suitable middle-level manpower, e.g. perhaps the training of paramedical personnel was of greater importance than the training of doctors.

The suggestion was made by a participant from the Philippines of exploring the possibility of universities training middle-level manpower, and a participant from Hong Kong commented on experiments in China which indicated that shortening of secondary education courses by 1/3 could be done without lowering quality.

9. Inevitability

One participant advanced the view that given the current development situation in so many countries, some degree of discrepancy between manpower needs and available manpower was perhaps inevitable and that countries would have to learn to live with it while finding ways to minimize its negative effects.

EMPLOYMENT OF GRADUATES

In discussing the question of employment of graduates on the third day, many of the participants noted the difficulty in obtaining reliable information on this. It was suggested that the universities themselves should make greater efforts to follow the employment history of their graduates, in order to be able to give better guidance to their students.

Guidance of students and graduates was one of the major themes of the discussion:

— Guidance of students towards courses which would provide them with skills which are in demand.

— Guidance of students during their studies to avoid waste of time and resources, with an attempt to de-emphasize the passing of exams as an end in itself.

—Guidance of students towards appropriate jobs—ways of bringing employers and graduates together and helping graduates to make the transition into working life.

— Guidance of students and graduates towards a concern for — and willingness to work in—rural areas.

(It was noted that while a good deal is known about why so few graduates work in rural areas, little is known about how to change the situation, and a request was made for practical recommendations, and for information on attempts already being made in this field—such a BUTSI in Indonesia).

A trend towards greater control of higher education was noted, even in countries where graduate unemployment or misemployment is not yet seen as a serious problem, and these controls were in general felt to be necessary, both to limit the quantity of students and to improve the quality of graduates.

However, there were once more warnings against over-rigid planning, and reminders that manpower planning often has difficulty in keeping up with the realities of the situation. It was felt important that courses should have some flexibility, and that attempts should be made to develop not only skills but also attitudes and qualities of commitment and adaptability which would make graduates able to respond to the development needs of their country.

CONCLUSIONS AND SUGGESTIONS

In the final session of the Workshop, a number of specific areas were identified on which it was felt that universities, governments, and also RIHED, could concentrate their efforts in order to improve the present situation. These areas can be grouped under three general headings:

a. Improvements in the techniques of preparing manpower requirement estimates, and in the subsequent use of these estimates.

b. Changes within universities (and other institutions of higher education) concerning enrolment policies, curricula, etc.

c. More and better contact between universities (and other institutions of higher education) and the rest of society (in particular development planners and the employers of graduates).

These three general headings, and the individual areas of concern that come under each general heading, obviously overlap with each other to a considerable extent, and none of them can be considered in isolation from the others. Nevertheless, the individual areas of concern are listed separately below in order to make clear the various concerns and suggestions coming from the participants.

Manpower Requirement Estimates — Preparation and Use

1. It was suggested that countries in the region need to develop better methods of estimating manpower requirements than the present methods which were basically designed to meet the needs of countries with different conditions than those in the Southeast Asian region. A particular need is for ways to overcome the present major problems of lack of data and unreliable data. It was thought that

an exchange of experience on this question between different countries in the region could be one of the ways in which countries could be helped with this matter.

2. It was suggested that countries need to develop checks to ensure that manpower planning is effectively integrated into overall national development planning so as to avoid the contradictions that have sometimes occurred.

3. It was suggested that links should be established between manpower planning and educational planning and that mechanisms should be developed to ensure that universities and other institutions of higher education respond to the manpower targets set by national development planners.

4. It was suggested that manpower data should not be distorted for academic empire building.

Changes within Universities

1. It was suggested that universities as living organisms must constantly question the why and the how of their own existence and examine critically what they are doing, and why, in their traditional but still valid functions of education, research and community service, so that they can constantly adapt to the changing needs of society.

2. It was suggested that there is a great need for universities and other institutions of higher education in the region, while retaining contact with the world community of scholars, to go a lot further in fitting themselves to national and local situations, and in dispensing with policies, practices and attitudes of foreign origin, that are not relevant, e.g.

— The range of courses offered, their curricula, the balance between theory and practice, and the number of students enrolling for each course, need to be linked to local conditions, national development strategies, and actual manpower requirements.

— More research is needed that is geared to local needs and situations; research to develop indigenous knowledge and techniques, to acquire greater understanding of the dynamics of local communities, to identify or develop intermediate technologies relevant to local needs and resources, to improve techniques of effectively delivering education despite the lack of many resources, to develop techniques of more effectively estimating manpower requirements, to develop planning models more relevant to local conditions.

— More commmunity service activities are needed that will both allow the university to respond directly to development needs and also add a great deal of practical value and relevance to the education and research functions of the university.

3. It was suggested that these changes should be made without dehumanizing students and graduates, that the aim is an output not of machines but of men and women, that culture and commitment are just as important as competence.

4. It was suggested that there is a need to develop methodology to measure the output of education systems with respect to their objectives.

Better Contact between Universities and Society

1. It was suggested that it is important to develop mechanisms whereby the university community can undertake research related to national development planning and also participate in the actual national development planning process, both for the contribution it can make and also to encourage a closer fitting of the university's objectives and activities to national development strategy.

2. It was suggested that greater contact also be established between the university and the private sector, e.g. by the university community undertaking research under contract to industry.

3. It was suggested that universities keep in touch with former students to maintain accurate and up-to-date data on employment patterns.

4. It was suggested that universities make far greater contact with employers of graduates in both the public and private sectors, and invite them (and graduates who are now employed, and other practitioners) to make suggestions for curriculum changes, and that up-to-date information about courses and graduate employment situations be made very freely available.

5. It was suggested that universities become much more active in their function of community service, e.g. through study-service schemes, so that:

— They can make courses more practical and relevant;

— They can obtain a continuous feedback from the community on community needs and expectations;

— They can develop the commitment of their students as well as their competence.

PROGRAMME OF WORKSHOP

Sunday, 15 December 1974

9.30 a.m. — 11.00 a.m.

Official Opening at the Conference Hall, Institute of Law and Administration

Welcome Address by Dr. Amnuay Tapingkae, Director of RIHED

Opening Address by H.E. Leuam Insisienmay, Deputy Prime Minister and Minister of Education, Fine Arts, Youth and Sports of Laos

Greetings by Dr. Khamtanh Chantala, Rector of Sisavang Vong University

2.00 p.m. — 5.00 p.m.

Session I:

"Development Strategies and High-level Manpower Needs in Southeast Asia"

Chairman:

Dr. Amnuay Tapingkae (RIHED)

Papers presented by:

1. Mr. Koh Watt Seng (Singapore)
2. Mrs. Vallabha Chartprasert (Thailand)
3. Mr. Nguyen Van Tung (Vietnam)*
4. Mr. Boun Oum Sisaveui (Laos)*

Discussants:

1. Dr. Riaz Hassan (Singapore)
2. Prof. Prachoom Chomchai (Thailand)
3. Prof. Karnandi (Indonesia)

Discussion:

All participants

Monday, 16 December 1974

9.00 a.m. — 12.00 noon

Session II:

"The Responses of Southeast Asian Universities to High-level Manpower Needs"

Chairman:

The Honourable Mr. Justice Tan Sri Raja Azlan Shah (Malaysia)

Papers presented by:

1. Dr. Apichai Puntasen (Thailand)
2. Dr. Mongkhol Sasorith (Laos)*

Discussants:

1. Prof. Prajudi Atmosudirdjo (Indonesia)
2. Dr. Pakorn Adulbhan (AIT)
3. Prof. Ronald Hsia (Hong Kong)

Discussion:

All participants

2.00 p.m. — 5.00 p.m. **Session III:**

"The Responses of Southeast Asian Universities to High-level Manpower Needs" (Continued)

Chairman:

Dr. Waldo S. Perfecto (Philippines)

Papers presented by:

1. Dr. Pang Eng Fong (Singapore)
2. Dr. Nguyen Duy Xuan (Vietnam)*

Discussants:

1. Dr. H.E. Hoelscher (AIT)
2. Mr. Hongsa Chanthavong (Laos)
3. Dr. Kenneth W. Thompson (ICED)

Discussion:

All participants

Tuesday, 17 December 1974

9.00 a.m. — 12.00 noon **Session IV:**

"The Employment of University Graduates in Southeast Asia"

Chairman:

Dr. Le Thanh Minh Chau (Vietnam)

Papers presented by:

1. Dr. Muhammadi Siswo Sudarmo (Indonesia)
2. Mr. Philip Limb (Singapore)
3. Dr. Bounlieng Phommasouvanh (Laos)*
4. Prof. Nguyen Van Hai (Vietnam)*
5. Mr. Saphon Sarasi (Cambodia)*

Discussants:

1. Miss Vichitra Prompunthum (Thailand)
2. Dr. John K. Friesen (IDRC)

Discussion:

All participants

2.00 p.m. — 5.00 p.m.

Session V:

"Summary and Recommendations"

Chairman:

Mr. Srey Rithy (Cambodia)

Summing-up:

1. Dr. Adul Wichiencharoen (Thailand)
2. Dr. Jacques Amyot (IDRC)
3. Dr. Amnuay Tapingkae (RIHED)
4. Dr. Muhammadi Siswo Sudarmo (RIHED)

Discussion:

All participants

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*The papers are not published in this book

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